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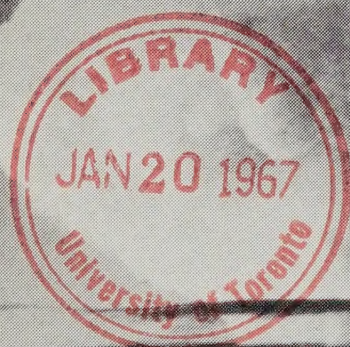
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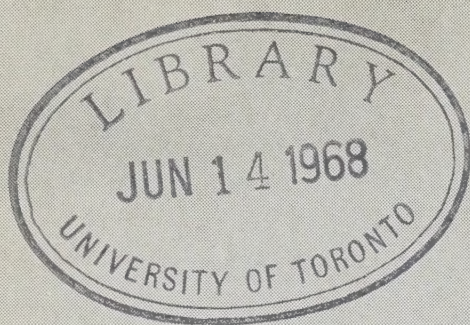
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JOURNAL

OF THE CANADIAN DENTAL ASSOCIATION
DE L'ASSOCIATION DENTAIRE CANADIENNE

JANUARY • VOLUME 33 • No 1 • 1967 • JANVIER





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The shadow of the cloud

A good many people are sceptical about the chances of survival after a thermo-nuclear attack. They contemplate weapon technology that constantly 'improves' while international tensions do not. They perceive the prospect of unprecedented devastation, the incredibly large numbers of instant casualties, the further toll from exposure, fatigue, fallout, malnutrition and infectious communicable disease. And so they conclude that there is no practical defence against the inter-continental missile or any of the other refinements of a nuclear holocaust.

There are others who simply prefer to evade the issue, being content to leave it alone. They do not challenge the propriety of making defensive preparations for that would invite being labelled defeatist. But it does seem easier to light a candle and then forget about the whole thing. Besides, civil defence seems a small enough token offering to a wrathful god, a bit of conscience money that no one will miss.

The trouble with this kind of thinking is that it is founded on speculation rather than hard fact. True, no one underestimates the devastating power of a nuclear detonation, the awesome blaze of its fireball, the convulsive fury of its churning mushroom cloud. But it is well to remember that such an explosion unleashes measurable forces with predictable results. And there are counter-measures to shield us from this menace or mitigate its effects.

In time of peace, planning for a crisis does not excite us or command our support. It is not easy to see the justification for preparedness. Yet the need is constantly there. Like life insurance, civil defence can only prove its worth when the policy has to be paid off. And, like life insurance, it may be put to the test at any moment.

Since the time, location and extent of disaster can never be predicted, we have to be prepared to meet and limit its consequences. It must be recognized that surviving medical resources alone will not be sufficient to provide emergency casualty care in the volume required and simultaneously sustain the medical and public health services upon which survival depends. The brutal fact is that personnel, supplies and facilities will be taxed beyond their limits. Consequently, the lines must be reinforced from the ranks of those who, by virtue of training, skills and experience, constitute a significant and valuable source from which such help may be obtained in time of critical emergency. The dental profession, standing next to the nursing and medical professions from point of numbers, is the logical source from which to reinforce casualty and other emergency health services in the event of a national disaster. How and where this may be done is described in following pages of the Journal.

The overriding aim of this issue is to review Canada's present state of emergency health planning insofar as it affects the dental profession. We cannot avert the threat of war by refusing to think about it or by declining to temper its consequences. Disaster can only be contained by the application of tested knowledge, and by individual and group effort. It is in this context that the dentist must be prepared to accept responsibility.

Spécialistes et spécialités

Lors du dernier congrès de l'Association dentaire canadienne, le Conseil des Gouverneurs a adopté une résolution qui remet en cause la question de la reconnaissance des spécialités. Un comité doit étudier le problème et faire rapport d'ici quelques mois.*

L'ADC cherche à établir sa politique dans ce domaine. On se demande quelles spécialités il faut reconnaître, et s'il faut exiger des spécialistes qu'ils restreignent leur activité à un domaine précis. La discussion est ouverte. Par leurs suggestions constructives, les membres de l'ADC peuvent influencer la politique de leur association.

Avant d'entrer dans le vif du sujet, faisons la distinction entre les sections de l'ADC et les spécialités qu'elle reconnaît. Une section est constituée par un groupe de membres qui s'intéressent à un aspect précis de notre profession et désirent augmenter leurs connaissances dans ce domaine. L'ADC a toujours favorisé la formation de tels groupements dont les activités ne peuvent avoir que des effets bienfaisants.

La reconnaissance de spécialités pose des problèmes différents. Elle établit en effet des distinctions entre les membres de notre association, en reconnaissant que certains d'entre eux ont des qualifications supérieures à celles de leurs confrères.

Si l'on considère que la profession dentaire est déjà une spécialité de la médecine, et que l'ensemble de son champ d'action est moins étendu que celui de bien des spécialités médicales, on peut se demander s'il est vraiment raisonnable de la subdiviser en compartiments encore plus étroits.

Une expérience clinique considérable, une habileté particulière dans un domaine restreint, ne sauraient justifier la reconnaissance d'une spécialité, car l'expérience aussi bien que la dextérité peuvent se rencontrer chez tous les omnipraticiens. Nous devons admettre que la naissance d'une spécialité n'est justifiable que lorsque son accès nécessite des qualifications universitaires qui soient non seulement supérieures à la moyenne, mais aussi dirigées dans un domaine qui déborde les limites du curriculum universitaire régulier.

Quelles spécialités ont donc droit à la reconnaissance officielle?

L'orthodontie, telle qu'on la pratique aujourd'hui, nécessite un mode de pensée et une méthodologie particulière dont l'omnipraticien n'a qu'une vague idée, puisque le curriculum normal ne fait qu'effleurer ce sujet. L'orthodontie a droit à la reconnaissance officielle. Cependant, si dans les années à venir, la profession dentaire continuait à l'extrême l'évolution qu'elle a amorcée, et confiait toutes ses responsabilités techniques à des auxiliaires; si l'omnipraticien

ainsi libéré recevait avant son DDS la formation que l'on réserve aujourd'hui aux orthodontistes, il faudrait s'attendre à ce que l'orthodontie perde son statut, comme toute autre spécialité qui serait affectée de la même manière par l'évolution professionnelle.

La chirurgie buccale se mérite le statut de spécialité, en autant que ses membres s'adonnent à la grande chirurgie et à la pratique hospitalière, et ne se contentent pas de "faire des dents incluses et des racines", ce qui serait nettement du domaine de l'omnipraticien.

La prothèse n'a certes pas droit au statut de spécialité. Le travail du spécialiste ne diffère, ni par ses principes, ni par ses techniques, de celui de son confrère omnipraticien. Tout au plus peut-on y rencontrer un souci de perfection et un sens du détail que l'on souhaiterait plus général.

L'endodontie ne pose pas de problèmes qui soient étrangers ou insurmontables pour l'omnipraticien. Surtout si l'on s'attache à l'essentiel du sujet plutôt qu'à un rituel technique qui tient plus de la magie des religions archaïques que de la pratique dentaire moderne.

La périodontie pose peut-être aujourd'hui des problèmes avec lesquels la moyenne des omnipraticiens n'est pas familière. Cependant, elle est reliée si étroitement à la pratique quotidienne, et l'incidence des maladies périodontaires est si élevée, que le patient et la profession seraient mieux servis par une modification du curriculum universitaire que par la reconnaissance d'une spécialité.

La pédodontie s'est souvent vu refuser le statut de spécialité sous prétexte que les techniques qu'elle applique sont identiques à celles qu'emploie l'omnipraticien. Cependant, on peut se demander s'il n'y a pas lieu d'admettre que la pensée du pédodontiste diffère de celle de son confrère omnipraticien. Son souci constant de prévention et son attitude d'esprit vis-à-vis des problèmes particuliers au petit patient qui est en pleine croissance physique et psychologique, ne peuvent certes pas s'acquérir sans une préparation universitaire spéciale.

L'hygiène publique, dont l'activité se situe sur le plan social, est elle aussi inaccessible à celui qui n'a pas reçu une formation universitaire spéciale. Elle a droit au plein titre de spécialité.

La pathologie aurait été reconnue il y a longtemps déjà, si les quelques spécialistes qualifiés ne s'étaient pas contentés de titres universitaires plus prestigieux.

Si l'on ne reconnaissait comme spécialistes que ceux qui ont reçu une formation universitaire d'importance, et dont l'activité se situe sur un plan tout autre que celle de leurs confrères, on n'aurait pas à se préoccuper de savoir s'il y a lieu d'exiger que le spécialiste restreigne ses activités à l'intérieur de limites mesquines que personne n'ose préciser.

Le problème vient de ce que l'on a voulu reconnaître trop de spécialités qui toutes étaient trop peu différentes de la pratique générale. Croyant bien faire, on a voulu souligner les efforts que certains avaient faits pour augmenter un tantinet leurs connaissances. On a cru bon de leur permettre d'acquérir un certain prestige et de s'élever au-dessus de leurs confrères.

C'est ainsi que l'on a faussé toute la question.

Toute étude du problème des spécialités devrait avoir à son origine un grand effort de revalorisation de l'omnipraticien. Les vrais spécialistes ne sont pas ceux qui ont suivi les quelques cours d'appoint dont tous les dentistes

auraient besoin. Ce sont ceux qui, grâce à une solide formation universitaire, exercent une activité totalement différente de celle de leurs confrères.

La simple recherche du prestige ne saurait en aucun cas justifier la reconnaissance de spécialités. Il n'y a pas de place chez nous pour celui qui n'aurait pas une assez haute opinion de sa profession pour être fier d'être tout simplement dentiste.*

*Voir "actualités dentaires" page 37, "Moratoire sur la reconnaissance de nouvelles spécialités."

letters • courrier

Remuneration for Hospital Dentists

To the Editor:

I find it hard to follow Professor Trott's reasoning in reply to my letter in the August issue of the *Journal of the Canadian Dental Association*.

I quoted two advertisements in the *British Dental Journal* of April 19, 1966 requiring:

1. Dental Intern (Resident House Surgeon) for one year. Applicants are required to possess a degree in dental surgery. Salary \$3,300 per annum, less room and board.

2. Orthodontic Technician. Starting salary \$5,000 per annum, plus a limited amount of private work for professional staff members.

I am glad that Professor Trott agrees that the dentist's salary is an insult, though I fail to see why the dental profession alone is responsible for this pittance.

The technician will obviously be a highly skilled individual, but, as Professor Trott states, it is unlikely he will ever have the responsibilities of a hospital consultant. Neither will he have had a wide education embracing a long university degree course. Why, therefore, should he ever earn a salary comparable to that of a qualified dentist? I think Professor Trott has his sense of values a little out of proportion.

I cannot understand Professor Trott's final attack on private practitioners' incomes. Presumably he selected his academic career because he preferred to avoid the responsibilities, long hours and stresses of private practice.

I should be surprised if his castigation of the dental profession were representative of the feelings of staff in Canadian dental faculties in general.

E. N. Screech,
1526 Beach Drive, Victoria, BC

Journal Mailing

To the Editor:

I would very much like to have the Journal mailed as formerly in an envelope. To me it seems very unprofessional to have it come unwrapped as it does now. I can give at least two reasons: first, some of the pictures on the cover might appear a little disagreeable, indelicate or upsetting to some of the viewers as could some of the contents at various times. Secondly, whether it happens to our journals I do not know, but with so many people today using saliva on their fingers for turning pages and for picking up papers I do not like to think that the Journal I receive might be thus covered with pathogens.

I have been told that nothing can be done about this matter of an envelope unless the majority wishes it. I am willing to receive cards to this effect from the dentists which I will be pleased to tabulate by number and name and send on to the Editor and Executive of CDA within a reasonable time.

Monica Mooney, DDS,
94 City Line,
West Saint John, NB

The current mailing procedure was instituted in response to a November 3, 1965 directive from the Council on Journalism that "... Effective with the January 1966 issue, the use of mailing envelopes for the Journal be discontinued on a one year trial basis." The Council's decision was based on careful evaluation of all aspects of the question, including the fact that the majority of the several hundred journals received monthly by the CDA are not enclosed in an envelope, and the saving (\$1,100 a year) achieved by using address labels is compatible with the need to curtail Association spending. (Ed.)

The dentist's role in emergency health services

C. A. E. McCabe,* DDS, DDPH, Ottawa, Ontario

Dentists could supply a 30 per cent reinforcement to the medical profession in time of emergency. The dentist's value in this role arises from his training and experience in the management of haemorrhage, shock, débridement, suturing, reduction and immobilization of fractures, and control of pain and of infections, as well as from his manual dexterity. Additional functions which he could perform adequately are first aid, including artificial respiration, early management of chest wounds, relief of pain, and treatment of shock in preparation of casualties for movement. Triage for cases of facial and oral injury is one of his valuable functions. He can assist in general surgical procedures. He is capable of insertion of nasogastric tubes, intravenous and other parenteral medications, catheterization, and, under direction, administration of immunizing agents. Those with special training in anaesthesia and public health would be of particular value in an emergency situation. Joint training of physicians and dentists in mass casualty care is desirable. Dentists' responsibilities fall into three areas: (1) the acquisition of sufficient experience in advanced first aid planning at the community level; (2) basic hospital administrative procedures and public health activities; and (3) professional response in problems of patient management common to both medicine and dentistry.

Canadian physicians and nurses have, in the past, met the emergency demands imposed by war or peacetime disasters. In the event of a nuclear attack, however, this capability could be seriously impaired. Some 50 per cent of Canada's 22,000 physicians and probably a much larger percentage of its 85,000 nurses are located in, or close to, hospitals situated in the potential target areas. There is little doubt, therefore, that among the millions of casualties there would be many medical practitioners and nurses. The surviving medical and paramedical resources would not be sufficient to provide emergency casualty care in the volume required and to maintain, at the same time, necessary public health and welfare services. These problems would be compounded by illnesses due to exposure, fatigue, malnutrition, fallout and infectious communicable diseases. Personnel, supplies and facilities would be taxed beyond their limits and assistance from members of allied health professions and technically trained health workers would be required.

DENTAL SKILLS APPLICABLE TO MASS CASUALTY CARE

Barring casualties within its own ranks, the dental profession could be expected to supply about 30 per cent reinforcement.

Except for physicians and nurses, the dental profession is the largest group of professionally trained health workers. Many of Canada's 6,396 dentists¹ would no doubt also perish in a national disaster, but it is hoped that those surviving would have received sufficient training to be ready to assume some of the medical tasks. The physician, in a disaster, is the pivot around which the whole effort revolves. In the event of his absence, or of an insufficient number, who can better replace him than the dentist? Undergraduate education and training are more parallel in medicine and dentistry than in any other professions. The dentist has experience in the control of haemorrhage, treatment of shock, the physical principle of débridement, the suturing of wounds and the reduction and immobilization of fractures. Through his training and practical experience he possesses a high degree of manual dexterity together with well developed co-ordination of hands and eyes. He applies these skills in the treatment of patients, frequently under extreme conditions of pain and infection.

ADDITIONAL POTENTIAL FUNCTIONS OF THE DENTIST

It is true that in a national emergency the average dentist will encounter problems beyond the range of his normal day to day experience. However, training and the skill and experience acquired in practice have prepared the Canadian dentist for any additional instruction required to enable him to master, relatively quickly, new technical procedures which would allow him to accept a share of the load. Where circumstances dictate, he should be prepared to give leadership to the casualty care team. With the possible exception of casualty-sorting (triage) which normally would be carried out by the most experienced surgeon available, the dentist should be prepared to be almost completely interchangeable with his medical confrères at any point in primary treatment.

Expansion of the role of dentists in national emergencies is not a new idea. During periods of intense military activity in

Korea, as well as in World War II, dentists served with medical units and participated willingly in the emergency care of the injured. The assignment of a specific role to an individual dentist depends, of course, entirely on the state of organization of emergency health services at the community level. Because of this fact, the functions a dentist would be expected to perform cannot be clearly defined. Nevertheless, the immediate needs in teams of professional personnel are likely to be more critical in relation to primary treatment services. Additional functions for dentists under mass casualty conditions could, therefore, comprise:

1. First aid, including but not limited to artificial respiration, emergency treatment of open chest wounds, relief of pain, treatment of shock and the preparation of casualties for movement;
2. Control of haemorrhage;
3. Attainment and maintenance of patient airway, including intratracheal catheterization and tracheotomy;
4. Proper and adequate cleansing and treatment of wounds;
5. Bandaging and splinting;
6. Triage of facial and oral injury cases;
7. Oral surgery;
8. Administration of anaesthetics under medical supervision;
9. Assisting in surgical procedures other than oral;
10. Insertion of nasogastric tubes, including lavage and gavage, as directed;
11. Administration of whole blood and intravenous solutions, as directed;
12. Administration of parenteral medications, as directed;
13. Catheterization of males and females;
14. Administration of immunizing agents, as directed.

The Canadian Dental Association, in its 1951 statement of policy on civil defence,² expressed the view that dentists could best serve as members of casualty care teams along with medical, nursing and other health services personnel. In this respect the dentist can render invaluable assistance in helping to fill the staffing requirements of advanced treatment centres and of the 200 bed emergency hospitals.

SPECIAL SKILLS

The CDA policy statement also pointed out that members of the profession who have specialized training and experience should be assigned to posts where their services might be utilized to greatest advantage. Many Canadian dentists have taken specialized training in a variety of fields ranging from anaesthesia to oral surgery and public health. With very little additional knowledge and training these dentists could relieve the radiologist, the anaesthetist and the public health medical officer of some of their duties in an emergency.

JOINT TRAINING OF PHYSICIANS AND DENTISTS AND MEDICAL AND DENTAL STUDENTS

The CDA has pointed out that dentists require some additional training for the responsibilities which will devolve to them in the event of a major disaster. In such emergencies the physician is expected to take care of the victims, but he cannot do so effectively unless all members of the team give their full and orderly support. How effective is the dentist going to be if he has not been trained to perform as an efficient assistant capable of leadership in the event the physician becomes himself a casualty? The CDA has emphasized in this respect the importance of jointly training the dentists and physicians, nurses and others who will be associated in coping with the problems of mass casualty care. This view has been endorsed by the Emergency Health Services Division of the Department of National Health and Welfare. It forms the basis of our planning and organization for the participation of the dental profession in the provision of health service during a national emergency.

Response from the dental profession and wholehearted co-operation from the medical profession are essential for developing appropriate courses and training for dentists. These courses should embrace the management of trauma, dressings, splinting of the various types of fractures not normally dealt with by the dental profession, immediate care and

transportation of the injured casualty, diagnosis and first care of those critically ill, emergency childbirth, and care of the psychologically disturbed. Demonstrations on methods of artificial respiration, cardiac massage, combined ventilation and massage, the use of accessory devices for resuscitation, blood transfusion, plasma expanders, and so forth should, if possible, include practice on dummies. Uniform standardization of treatment methods and team work will increase efficiency in emergencies. With this in view, courses and demonstrations should, as far as is practical, be attended jointly by medical and dental students and/or practitioners in medical and dental schools.

PILOT PROJECTS AND COURSES ON EMERGENCY HEALTH SERVICES

As early as 1960-61 the Faculty of Dentistry, Université de Montréal, offered a pilot course of 10 lectures to undergraduate dental students. The project was revived in 1965-66 in a modified form. The new course, consisting of 11 lectures, puts less emphasis on organization for disaster in order to devote more instruction to actual mass casualty care. The 53 students of the 1966 graduating class attended the course. It is expected that the course will be repeated this year.

In 1960-61 the Faculty of Dentistry, University of Toronto, invited its undergraduates to attend, on a voluntary basis, a series of five lectures prepared for medical students. The lectures dealt with mass casualty care in a disaster. The course was not repeated because it was the opinion of the Faculty, at that time, that lectures on disaster procedures would be more effective if instruction could be organized for recent graduates through regular dental professional channels. The feeling was that undergraduate students do not take extra-curricular activities of this nature very seriously. Nevertheless, five lectures on first aid are regularly given in the third dental year. Some of these without doubt include reference to mass casualties. And while there are no special lectures specifically related to disaster situations, such regular courses as general surgery and general

medicine also include reference to certain problems which might arise in a situation of this magnitude.

At McGill University very little attention was given specifically to this matter prior to July 1962. However, two hours in the curriculum were devoted to the role of dentists in disaster situations. This instruction was based primarily on material offered in the Arnprior course. Furthermore, each dental student is routinely exposed to operating room and hospital techniques during which considerable experience is acquired in the emergency treatment of the orofacial area.

The Faculty of Dentistry, University of Manitoba, inaugurated a pilot course of four lectures on mass casualty care last year. This Faculty has also proposed a significant amendment to its university calendar for the next academic year. This is the addition, under 'oral surgery,' of the following sentence: "Lectures will also be given in disaster medical care and the role that the dentist may have to assume."

At the end of March 1962, some 2,500 members of the health professions had already followed courses at the former Canadian Civil Defence College, Arnprior.³ Included in this number were 558 physicians and 120 dentists, a ratio of 4.6 physicians to one dentist. During the fiscal year 1965-66 attendance at such courses given at the Canadian Emergency Measures College, Arnprior, comprised 114 physicians and 14 dentists.

SUBSEQUENT CONTINUING TRAINING

Formal training given by universities and the Canadian Emergency Measures College should be locally supplemented by some form of continuing training for all health professions and paramedical personnel. Follow-up training of this type would permit refinement of plans and would improve the skill and efficiency of each member of the team who thereby would know what is expected of him in the event of a disaster. We anticipate that the increased emphasis on hospital and municipal planning will promote closer

integration of the dental profession and of the individual dentist with the treatment and health teams of the community for the purpose of emergency casualty care in national or local disasters.

OPINIONS AND TRAINING IN USA

In the United States the dentist has three basic areas of responsibility in disaster planning:⁴

"First, a civic or community responsibility to acquire sufficient background and experience to encourage, develop and instruct in advanced first aid, disaster planning and shelter program activities;

"Second, an administrative responsibility, that of becoming sufficiently familiar with basic hospital administrative procedures to allow him to assume an important role in providing administrative continuity, in advanced treatment centres, in 200 bed emergency hospitals and in established hospitals, as well as in the overall management of public health problems in connection with community shelters, sanitation systems, water potability protection and conservation, radioactivity contamination, and so forth in disaster periods;

"Third, a professional responsibility with regard to patient management common to both medicine and dentistry, such as diagnosis of intra-oral manifestation of systemic disorders, dental triage, the administration of drugs by mouth or intramuscularly and intravenously, the surgical repair of lacerations, fractures and wounds, the control of haemorrhage, resuscitation including the provision of an adequate airway, the psychological management of patients, the identification of fatalities by dental examination, and . . . [prescription of medication] for emergency medical care."

According to the University of Alabama School of Dentistry motivation, indoctrination and training of this nature cannot be accomplished by a package course listed in the curriculum as 'Civil Defence' and presented in the final undergraduate year just prior to graduation. In a current four year pilot study University of Alabama dental students will receive 83

hours emergency health care instruction. Most of the material will be presented as part of the regular curriculum. Only 29 additional hours will be required for the presentation of material that could not be incorporated into the existing curriculum.⁵

Tufts University School of Dental Medicine plans to give its students actual individual experience as members of a team treating mass casualties. Students will also be acquainted with chemical, biological and radiological warfare, shelter programs, ancillary medical services and current and future disaster plans. The Tufts program consists of at least eight two-hour lectures, six or more two- or three-hour seminars in hospitals, a field trip to an emergency training centre and about five additional hours of class time. This is followed by an examination on emergency care. This school has also developed a manual outlining for the student some of the basic principles of emergency care.⁶

It must be kept in mind, however, that training programs in the USA and in Canada cannot be identical. The Americans accept compulsory military service. Therefore their dentists are more likely to need intensive knowledge and training in mass casualty care during the period of their compulsory military service.

CONCLUSION

The intra-disciplinary capability for a national emergency can be acquired in dental schools either as part of the undergraduate curriculum or through post-graduate studies. The extra-disciplinary capability cannot, however, be obtained by dentists without effective support and guidance from outside our profession. The medical and other health professions possess the competence to train a nucleus

of dentists in the principles of medical, hospital and public health practices. These trained dentists, with the help of other dentists specialized in various fields, can in turn extend instruction to dental students and practitioners. The best time and place to begin training the dentist for his role in emergencies is undoubtedly at the undergraduate level. The Emergency Health Services Division hopes that all dental schools in Canada will consider the desirability of including in their curricula pilot projects analogous to those already undertaken by the dental faculties of the Université de Montréal and University of Manitoba in co-operation with the medical faculties of their universities.

To summarize, in a disaster dentists may be called upon to accept emergency responsibilities beyond the scope of their usual practice. Nevertheless, competence in their own field has prepared them to perform, with a minimum of additional training, services required of them to reinforce mass casualty care and other emergency health services. All Canadian medical and dental schools are therefore urged to develop joint plans and organization for appropriate training of all professional groups concerned.

*Public health dental officer, Dental Health Division, and dental adviser to Emergency Health Services Division, Department of National Health and Welfare, Ottawa.

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1200 Brooke Claxton Building

Civil emergency planning in Canada

J. F. Wallace,* MA, Ottawa, Ontario

Nuclear war remains a possibility and Canada could be subject to radioactive fallout even if she were not directly attacked. Civilian emergency planning is directed to the protection and preservation of life and property; maintenance of governmental structure; and conservation of resources. Canada Emergency Measures Organization (EMO) has been developed to accomplish these objectives. EMO coordinates emergency planning by other departments and agencies of federal government, and its organization is reflected within provincial and municipal governments. Additional tasks of Canada EMO are sponsorship of activities which are not the responsibility of other governmental departments: guidance, advice and financial assistance to provinces and municipalities; advice to the federal government on implementation of programs; and international liaison. Achievements to date include an operational attack warning system; an emergency broadcasting system; establishment of emergency government facilities; creation of 400 emergency measures organizations across Canada; prepared plans for manning key governmental posts; a comprehensive medical stockpile; and establishment of 'shadow agencies' for control of housing, food and manpower.

Important tasks in hand include a national survey of fallout shelters; distribution of radiation detection equipment; prepositioning of the items of the medical stockpile; and training additional emergency planners at the Canadian Emergency Measures College, Arnprior.

La guerre nucléaire demeure possible et le Canada pourrait être exposé aux retombées radio-actives même s'il n'était pas lui-même attaqué. Les mesures d'urgence ont pour but d'assurer la protection des citoyens et des biens, la continuité des structures gouvernementales et la conservation des ressources. L'organisation des mesures d'urgence du Canada (OMU) a été créée pour remplir ces fonctions. L'OMU coordonne les mesures d'urgence des autres ministères et organismes du gouvernement fédéral, et son organisation se retrouve aux échelons provincial et municipal. L'OMU du Canada est également chargée des responsabilités qui n'appartiennent pas en propre aux ministères gouvernementaux: aide technique et financière aux provinces et aux municipalités, recommandations au gouvernement fédéral sur l'exécution des projets et liaison internationale. L'OMU compte à son actif les réalisations suivantes: un système d'alerte, un réseau de radio et TV d'alerte, des locaux d'urgence pour le gouvernement, 400 organismes de protection civile au Canada, des plans pour remplir les postes-clés du gouvernement, des stocks médicaux complets, ainsi que des organismes d'urgence chargés d'organiser le logement, la nourriture et le personnel. L'OMU s'occupe actuellement d'enquêter sur les abris contre les retombées radio-actives, de distribuer du matériel pour la détection de la radioactivité, de répartir les articles des stocks médicaux et de former des spécialistes de la protection civile au Collège canadien des mesures d'urgence, à Arnprior.

Planning for what is now generally known as national survival became a requirement around 1954, following the detonation of the first thermonuclear device in the Pacific. The subsequent development of transporting nuclear weapons by missiles made it apparent that, should a nuclear war take place, Canadians might become casualties to any nuclear exchange between the major powers.

It is a well known fact that the policy of successive governments has been to do everything humanly possible to maintain peace. Nevertheless, they have recognized that nuclear war is still a possibility, be it a remote one. Arising out of this conclusion, it is acknowledged that nuclear attack against this continent would be catastrophic. But, catastrophic as such an event would be, it is a fact that sensible and not necessarily overly expensive preparations would do much to alleviate suffering and limit damage.

Civil emergency planning in Canada is, therefore, based on the following assumptions: nuclear war is a possibility; the problems created by nuclear attack would be national in scope; casualties can be reduced from what they would be if no preparations were made; damage to key transportation and communications systems can be limited; and even if Canada were not attacked directly, some areas could be subjected to radiation fallout emanating from detonations south of the border.

The broad national objectives of our emergency planning program are three-fold:

1. To protect and preserve life and property by developing such measures as will help the population to survive the hazards of nuclear war;

2. To maintain throughout the whole country a structure of government; and

3. To conserve and distribute equitably the resources which survive a nuclear attack.

Because these objectives cannot be achieved in a short period of time, there has developed throughout the whole country, at each level of government, a small core of emergency planners. It is their primary task to develop, in conjunction with the existing departments and agencies of government, the type of emer-

gency plans which would permit them to operate effectively during an emergency. Although it is commonplace to refer to these emergency planners as the 'Emergency Measures Organization,' it has never been the intention that such organizations would supplant either the prerogatives or the functions of government. If one were to visualize the total structure of government, supported by trained volunteers and private agencies, operating in a disaster situation according to a previously developed plan of action, one would have a true understanding of an emergency measures organization.

The authority under which the federal departments of government develop their respective plans for dealing with war emergency situations is contained in an Order in Council. This Order in Council (1041-1965) spells out the responsibility of each minister of the Crown. At the provincial level of government, the powers and responsibilities are in all cases contained in provincial acts. Similarly, at the municipal level, the authority is usually contained in a bylaw.

The role of the Canada Emergency Measures Organization, and similarly for provincial and local emergency measures organizations, can be summarized as follows:

1. To co-ordinate the development of emergency plans by each department or agency of government;

2. To develop plans or make the necessary arrangements to deal with tasks which cannot be assigned to an existing peacetime department or agency of government;

3. To provide guidance, advice and assistance (financial and other) to provinces and municipalities; and

4. To advise the federal government on the appropriateness of implementing emergency programs.

Since 1959, when emergency planning became all-encompassing, a number of programs have been developed which have immeasurably increased our state of preparedness. An attack warning system is in existence and is capable of providing warning of attack. An emergency broadcasting plan, involving all radio and television stations, can be implemented in a short period of time. Additionally, key

transmitters have been provided with a capability of operating under conditions of radiation fallout. A complex of emergency government headquarters, to house key elements of government, has been built throughout the country. An emergency communications system extends from the national level to provinces, and within most provinces, down to municipal government. A comprehensive medical stockpile has been established. The federal government, and certainly most provincial and local governments, have developed plans to ensure the manning of key government posts. Organizations are being, or have been, developed to control the use of accommodation, food and manpower.

The federal government, in co-operation with the provinces, is currently engaged in other projects which will further increase the national survival capability. Equipment required to detect and measure radiation fallout is being distributed throughout the country. A national fallout shelter survey, to identify protected accommodation in large public buildings, will be completed in a couple of years. The medical stockpiles previously referred to are being pre-positioned throughout provinces. The Canadian Emergency Measures College, at Arnprior, Ontario, is conducting a wide range of courses for key emergency planners from all governments.

The foregoing does not overlook the de-

sirability of having emergency measures organizations respond to peacetime civil emergencies. One lesson which stands out, following most major disasters, has been the general lack of co-ordination of emergency activities at the scene of disasters. The emergency planners who are employed by governments should provide the initiative to have comprehensive plans prepared and understood by the operating agencies of government. Indeed, many municipalities now have such plans which have actually been used to deal with emergencies, such as searches for lost people, major explosions and floods.

In concluding these brief notes on Canada's emergency planning program, there are five important points to be made. First, emergency planning is a responsibility of government (as well as of individual citizens). Secondly, emergency measures organizations are the instruments through which governments have their plans of operation for an emergency developed. Thirdly, whatever plans are developed must be practised, updated and in a state of readiness. Fourthly, emergency planners must be abreast of the latest developments in a host of diverse areas, ranging from new techniques of first aid to the development of new missile or anti-missile systems. Lastly, the process of emergency planning must include methods whereby adjustments can be made to meet changing conditions.

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Medicare Bill Receives Royal Assent

The Canada medicare bill (Bill C-227), which "authorizes the payment of contributions by Canada towards the cost of insured medical care services incurred by provinces pursuant to provincial medical care insurance plans," was passed by the Senate on December 16 and received royal assent on December 21, 1966.

Emergency care of maxillofacial injuries

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Maxillofacial injuries require immediate first aid treatment such as the establishment of a free airway, control of haemorrhage and treatment of shock. Support of the facial structures and positioning of the patient face downwards are essential life saving requisites. Anxiety concerning facial appearance has an adverse influence on the patient's recovery. Early evacuation to an advanced treatment centre for medical and dental care is of prime importance.

In the emergency treatment of maxillofacial injuries, special care must be taken if life is to be saved and dental functions and facial appearance restored. These requirements can only be provided by a highly skilled integrated medical and dental team. Following a disaster, first aid treatment must be rendered as quickly as possible and, of necessity, this will probably be undertaken by para-professional persons.

The following are general types of maxillofacial injuries which will have to be cared for by first aid workers at first echelon and continued under professional supervision at second echelon.

1. Civilian Type.—Injuries in this class are due to minor accidents, falls, fist blows, and so forth. They are character-

ized by simple linear fractures which are frequently compound but rarely comminuted. There is little bone displacement or loss of tissue. There is no shock and the general condition of the patient is good.

2. Crush Type. — The crushing action of falling masonry, motor car and airplane accidents produces multiple comminuted fractures with great displacement of tissues. Bruising of the tissues and shock are usually severe.

3. Gunshot and Shell Wound Type. — Missiles travelling at a high velocity produce grossly comminuted compound fractures with loss of bone and soft tissue. When a bullet shell fragment, or other hard substance, enters the face, the entrance wound, according to the size of the fragment, is relatively small. The penetration fractures and comminutes the bone, carrying fragments into the soft tissues resulting in gross destruction. The exit wound is large and there is a great loss of tissue. Clothing, dirt, and so forth are carried into the wound by the foreign body, causing sepsis, and débridement is, therefore, necessary.

4. Air Raid Type. — Injuries in this classification are a combination of the crush and gunshot wound types. The tissues are subjected to crushing as well as compound injuries from flying objects. Severe shock is common in this type of injury.

Initial first aid treatment includes life saving measures such as the establishment of a free airway, control of haemorrhage and treatment of shock. Concurrent injuries should be noted and evaluated. A barrel bandage support should be applied to the mandible in order to maintain the free airway and prevent further haemorrhage by movement of the fractured parts. There is a marked reduction in shock as a result.

If the victim is conscious, one can readily assess the status of respiration, the degree of shock and concurrent injuries. If the patient is unconscious, the assessment of these factors will tax the observer's diagnostic abilities to the utmost.

The first consideration is the establishment of an unobstructed airway. When the mandibular symphysis is destroyed, the genial attachment of the tongue is lost and it falls backward, obstructing the glottis. Respiration is difficult because of oedema of the soft tissues of the floor of the mouth and the accumulation of blood, saliva and foreign bodies, such as dentures, bone fragments, teeth, and so forth in the throat.

The patient should be placed in a face downward position, the tongue pulled forward and the airway cleared, using one's fingers as a rake. If the genial attachment is lost, it will be necessary to pass a suture through the tongue or even a safety pin with string and attach it to the skin of the face with an adhesive bandage. Thus the tongue will be maintained in an extruded position and the airway unobstructed. Tracheotomy is seldom necessary but should be performed without delay when the occasion demands.

The control of haemorrhage is rarely a difficult procedure. Pressure bandages will usually suffice.

When respiration is restored and haemorrhage controlled, a barrel bandage should be applied to the jaws to immobilize the facial structures. This will be a continuing aid to the maintenance of the airway, control of haemorrhage, relief of

pain and reduction of shock. When this support is being applied, care must be taken to conserve all attached bone and soft tissue fragments. Loss of such fragments complicates future surgical repair and results in dental malfunction and distortion of facial features.

Every effort should be made to prevent or reduce shock. Such efforts can be instituted by the first aid worker at the first echelon of treatment (casualty collecting units), and patients should be awarded high priority of evacuation to second echelon (advanced treatment centres) for continuation of treatment by professional staff. The patient's anxiety over his facial disfigurement is strong and may contribute to the development of shock. Kindness and reassurance are, therefore, essential in all stages of treatment.

The patient should always be face downward, whether lying, sitting or standing. This permits the discharge from the mouth of saliva, blood and foreign bodies. If these first aid measures are administered in the field, the patient should arrive at a maxillofacial centre in a condition conducive to the best surgical restoration of function and facial appearance.

SUMMARY

Maxillofacial injuries require immediate first aid for the establishment of a free airway, control of haemorrhage, and treatment of shock. The facial structures must always be supported and the patient kept in a face downward position. Anxiety of the patient for his facial appearance is a distressing factor which must be considered in all stages of treatment. Early evacuation to an advanced treatment centre for professional care is of prime importance.

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Veterans Affairs Building

Development and present status of Emergency Health Services informational and educational programs

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Information and indoctrination about emergency health services (EHS) has been directed toward physicians, dentists, pharmacists and nurses since 1950. Basic courses for dentists and physicians were offered at the Canadian Emergency Measures College (CEMC) from 1955 to 1962. General indoctrination is now a provincial EHS responsibility and CEMC has instituted more specialized instruction for those assigned to specific duties. Pilot undergraduate programs were introduced in three medical schools between 1952 and 1955. This extension has been encouraged by the Association of Canadian Medical Colleges. Dental undergraduate training has also been instituted and is likely to expand.

Divers programmes d'information sur les services de santé d'urgence (SSU) ont été institués à l'intention des médecins, des dentistes, des pharmaciens et des infirmières depuis 1950. Des dentistes et des médecins ont suivi les cours du Collège canadien des mesures d'urgence (CCMU) de 1955 à 1962. La formation générale est maintenant confiée aux provinces, tandis que le CCMU dispense un enseignement plus spécialisé, à ceux qui doivent assumer certaines fonctions précises. Des programmes pilotes ont été adoptés par trois facultés de médecine entre 1952 et 1955. L'Association des Collèges de médecine canadiens avait encouragé cette initiative. Certaines facultés dentaires enseignent aussi les mesures d'urgence, et cette pratique se répandra probablement.

The fact that this Journal again opens its pages to the interests of the Emergency Health Services Division (EHS) of the Department of National Health and Welfare suggests that a general review of our educational and informational program is timely.

Current terminology is used throughout this paper; thus, the designation Emergency Health Services may mean, according to context, the earlier organizations called Civil Defence Health Planning Group or Civil Defence Health Services. Similarly, Emergency Measures

Organization (EMO) may indicate the former term, Civil Defence Headquarters.

GRADUATE PROGRAM

The graduate program has been directed toward the professions of medicine, dentistry, pharmacy and nursing. The earliest step was taken in 1950 when an existing military school, the Joint Nuclear, Biological and Chemical Warfare Defence School (Joint NBC School), at Camp Borden, Ontario, first accepted civilian candidates. In the first year (1950-1951), some 56 civilian candidates, including professional persons, attended the Camp Borden courses. In the next year, when the School offered specialized courses for medical and dental officers of the Armed Forces, civilian members of these two professions joined their military colleagues in common study. In the four years, 1950 to 1954, about 50 civilian medical and dental practitioners attended the Joint NBC School.

To the staff of the School, this was a pleasant and broadening experience. To the civilian practitioners, it could not have been fully satisfactory since the approach was essentially military with a good deal of attention to field exercises, respirator drills and the like. Nevertheless, the civilians, many of them public health and governmental administrators, seemed reasonably pleased at the clinical and scientific aspects. To them the chief value of these courses was the knowledge that techniques of personal and collective protection against nuclear, biological and chemical weapons existed, and that these techniques could be applied in principle in defence of the general population.

Courses under EHS auspices for medical and dental practitioners were instituted at the Canadian Emergency Measures College (CEMC) in 1955. Presented twice yearly, each course received 50 to 60 candidates and, altogether, some 800 professionals attended them until 1962 when this method of training was discontinued.

The curricula included discussions of the target effects of nuclear weapons; radiation hazards to man; mass casualty management of traumatic and thermal in-

juries; the special problems of ophthalmic, maxillofacial and cerebrospinal cases; psychological and psychiatric reactions in disaster; public health and hygiene; descriptions and demonstrations of the EHS emergency stockpile; as well as other demonstrations of several kinds, and lectures on organization and medical logistics. Speakers were drawn from the academic community, from governmental scientific organizations, and from the military, as well as from the EHS organization. Although well received, these courses were, as said, discontinued. The stated reasons for this decision were that they did not reach a large enough segment of the professions, that general indoctrination was to become the responsibility of the provincial EHS directors, and that the federal EHS authority had instituted more specialized instruction for those designated to specific roles.

CURRENT COURSES

At present, federal EHS offer courses as set out in Table 1. These are summarized as follows:

EHS Health Operations. — The aim of this course is to teach health officers designated to work at central, regional, zone, or municipal headquarters the principles and techniques of planning, command, control, communications and administration as related to emergency health operations. Candidates are senior civilian or military health officers in, or likely to be appointed to, emergency health staff positions at federal, regional, zone, municipal or target area headquarters.

EHS Public Health Services Planning and Operations. — The aims are training in planning and organization, and operations of the emergency public health services. Candidates are those trained in public health from the professions of medicine, nursing, veterinary medicine, engineering, and public health inspectors.

EHS Unit Directors. — The course teaches directors and officers of the staffs of EHS units the principles and techniques of organizing, directing, operating and training the personnel of advanced treatment centres, 200 bed emergency hos-

pitals, emergency blood services shadow depots, and emergency clinics. Candidates must hold senior appointments in one of such units or be members of provincial EHS staffs.

EHS Nurse Educators. — Candidates are qualified nurses who direct or instruct in a nursing education program. The course provides the material required for instruction in disaster nursing.

EHS Health Supplies Officers. — The candidates, graduates in pharmacy, are members of the provincial EHS staff who are designated for duties related to management of the equipment issued by federal EHS for provincial use.

EHS Instructors' Course in Casualty Simulation. — This technique, a valuable adjunct to first aid training, has proved a realistic addition to hospital disaster exercises and related activities. Candidates are nominated and employed by provincial EHS authorities. They are qualified as instructors in this skill.

Radiation Protection in EHS Units and Hospitals. — The aim of this comparatively new course is to prepare small numbers of physicians, dentists and health physicists to disseminate the principles and skills of protection against nuclear weapon fallout in health units and installations. Provincial EHS authorities are expected to utilize these federally trained persons as instructors for those

professional persons designated as radiation defence officers within the EHS organization.

EHS Technical Officers' Course. — This course is also comparatively new. It is designed for scientifically educated persons who are nominated to provide technical support to EHS headquarters at the several levels of government. Candidates are trained to formulate damage and casualty estimates, plot radioactive fallout and accumulate data on health resources.

INSTITUTES, LECTURES, SYMPOSIA

Hospital Disaster Institutes.—These institutes were first proposed jointly by the Canadian Hospital Association and federal EHS in 1954. Their original purpose was to indoctrinate personnel of from 40 to 60 hospitals across Canada in the principles of disaster planning. In 1962 provincial authorities assumed responsibility for their own hospital disaster institutes. About 35 institutes have since been held and practically all hospitals have had a chance to participate in institute studies.

Since 1963 *Standards for Accreditation of Canadian Hospitals* have required that "every hospital plan for care of mass casualties must be suitable to the demand which may be made on the hospital concerned." Moreover, the Canadian Council on Hospital Accreditation "[expects] to find a formal, written disaster plan in all larger teaching hospitals, in all regional hospitals and in larger community general hospitals"

Public Health Disaster Institutes.—These have been developed along rather similar lines by the Public Health Section of federal EHS. Their purpose is to brief personnel of local health departments on the status of emergency planning in Canada, with special attention to the problems of public health. Since they were first instituted in 1966, eight such institutes have been held and about 375 public health workers of several disciplines have attended them.

Lectures, Symposia.—On request, EHS officials and others have made presenta-

TABLE 1 Emergency health services courses at the Canadian Emergency Measures College, Arnprior.

Course	English (E) French (F)	Number of candidates
Health operations	E, F	30
Public health planning and operations	E, F	45
Federal-provincial directors conference	E, F	50
Federal-provincial supplies officers conference	E, F	40
Federal-provincial nursing conference	E, F	40
Unit directors	E	35
Nurse educators	E, F	45
Supplies officers	E	35
Pharmacists orientation	E, F	35
Casualty simulation instructors	E, F	25
Supplies officers equipment	E	35
Radiation defence officers	E	25
Technical officers	E	20

tions before professional associations and other learned bodies over the past years. These have taken the form of lectures and symposia on mass casualty care and related topics.

UNDERGRADUATE PROGRAM

At about the same time that the joint NBC School accepted civilian professional candidates, two medical schools introduced undergraduate indoctrination in mass casualty care. One school invited an officer of the Joint NBC School to present lectures to its senior students. Another arranged for senior students to visit Camp Borden for lectures, discussions and demonstrations; later, the same school made similar arrangements with CEMC. In 1955 a third medical school introduced lectures into the curriculum of its final year.

In 1962 federal EHS surveyed by questionnaire the status of undergraduate training within their field of interest. At that time, only two schools retained it in their curricula. Another stated that pre-medical students received first aid training.

Believing it worth while to extend the undergraduate training, officials of the Department of National Health and Welfare approached the Association of Canadian Medical Colleges late in 1964, and, at a meeting in February of the following year, were permitted to present proposals (1) that the deans of three medical and two dental schools be asked to co-operate in a pilot program; (2) that federal EHS provide guide material in the form of collected papers and other literature to participating schools; (3) that EHS give some financial support to the schools; and (4) that the five schools report on the program and proffer recommendations on the basis of their pilot experience.

These reports were received at a symposium sponsored by federal EHS in August 1966. Representatives of 11 medical schools and six dental schools attended, as well as six provincial EHS directors, two officers of Canadian Forces Medical Services, and an officer of the

Medical Section, Defence Research Board. Of the three reporting medical schools, two had made satisfactory progress during the academic year 1965-66, and the third described well-founded plans for 1966-67. Both dental schools had held about six periods of instruction for their students. Study material supplied by federal EHS had been well received by the students and had proved useful to faculty members presenting the subjects. First aid training had been well accepted by premedical students of at least one school.

The following recommendations emerged from this meeting:

1. Instruction should be given by seminars rather than lectures.
2. Instruction periods should be scheduled so as not to conflict with preparation for examinations.
3. Students should participate in hospital disaster planning, exercises and demonstrations.

One faculty member also urged that the administration and logistic aspects of emergency planning be presented early in the medical courses.

It is worth noting that, in the three medical schools participating in the 1965-66 pilot study, between 250 and 300 undergraduates received some indoctrination in disaster medicine. This represents about 30 per cent of the medical student population of Canada for that year. In comparison, about 800 practising physicians received similar indoctrination under provincial EHS auspices; that is, about 35 per cent of all physicians in the country.

Current programs for dental students are described elsewhere in this symposium by Dr. McCabe. Parallel developments have occurred in the education of pharmacists and nurses. In nursing the approach has been through nurse educators to students in schools of nursing.

JOURNALS

Professional journals have been very hospitable to those contributing articles on subjects of EHS interest. Readers of the Journal will note that the current issue

is the second to present such a symposium for dentists. Publications that participated in an earlier symposium in 1962-3 are the *Canadian Medical Association Journal* (Vol. 87, No. 22, Dec. 1, 1962); *L'Union Médicale du Canada* (Vol. 91, Dec. 1962); the *Journal of the Canadian Dental Association* (Vol. 28, No. 12, Dec. 1962); *The Canadian Nurse* (Vol. 59, No. 1, Jan. 1963); *L'Infirmière Canadienne* (Vol. 59, No. 1, Jan. 1963); the *Canadian Pharmaceutical Journal* (Vol. 96, No. 1, 1963); *Canadian Hospital*, Symposium on Hospital Disaster Planning (Mar. 31, 1963); and the *Canadian Journal of Public Health* (Vol. 54, No. 9, Sept. 1963). Another journal that has been active in support is the *Medical Services Journal, Canada*, which published 38 articles on mass casualty care and related topics between 1955 and 1963.

SUMMARY

Emergency Health Services' informational and educational program has been directed toward the professions of medicine, dentistry, pharmacy, and nursing. It began in 1950 when medical and dental civilian practitioners were first accepted

at a military school. The graduate program for these two professions has continued under the auspices of federal and provincial EHS authorities up to the present time. The approach has been through general courses at the Canadian Emergency Measures College (1955-1962), and through specialized courses at the present time. Hospital disaster institutes and public health disaster institutes have provided a further means of graduate indoctrination. General orientation and specialized courses have been offered to the profession of pharmacy. In nursing, the approach has been through nurse educators to students in schools of nursing. Undergraduate programs were instituted in three medical schools between 1952 and 1955. Their extension has been encouraged by the Association of Canadian Medical Colleges. Dental undergraduate training has also been instituted and will, presumably, be also extended.

Professional journals have been generous in allotting of space to writers on subjects related to mass casualty care; the present symposium is the second to be presented by this Journal.

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Brooke Claxton Building

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Management of the acute radiation syndrome

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Classification of radiation injury on a clinical basis is useful for determining priorities of evacuation and treatment in a mass casualty situation. Victims of nuclear attack will probably also suffer traumatic and thermal injuries. Four categories of surgical injury have therefore been combined with three categories of radiation injury to yield 12 classes of patients whose disposition is described. The treatment of the acute radiation syndrome is briefly discussed and the concurrent injuries from trauma burns and their possible implications are considered.

La classification clinique des lésions dues aux radiations permet d'établir des priorités pour l'évacuation et le traitement des blessés dans une grande catastrophe. De plus, les victimes d'une attaque nucléaire subiraient vraisemblablement des lésions traumatiques et thermiques. En combinant quatre catégories chirurgicales de lésions avec trois catégories de lésions dues aux radiations, on obtient 12 classes de lésions, qui sont décrites ici. Le traitement du syndrome aigu des radiations est brièvement exposé, de même que les traumatismes et les brûlures et leurs implications.

This article describes the management of persons who have been exposed to ionizing gamma radiation under conditions where large numbers of casualties would occur. While designed mainly for application during the period after a nuclear attack, the principles also hold in a situation following a nuclear accident involving moderate numbers of casualties. The method described is in accordance with the principles of mass casualty care ac-

cepted by federal Emergency Health Services and is within the capabilities of the established units of that organization.

Casualties after a nuclear attack may suffer from injuries other than those induced by radiation alone. Accordingly, the acute radiation syndrome is discussed first as an entity and secondly in conjunction with associated injury. The hazards resulting from contamination with

radioactive material in contact with the body surface are not considered in this article. Their nature and management have been discussed elsewhere.¹

CLASSIFICATION OF RADIATION CASUALTIES

The degree of injury resulting from radiation is proportional to the dosage received, and the pattern of the syndrome changes as the dosage is increased. The latent period between exposure and onset of symptoms becomes reduced and a change occurs in the major manifestations caused by the haemopoietic, gastro-intestinal or nervous systems. Classification of casualties according to the dose received would be possible if it were feasible to estimate this dose accurately in a manner which can be related to the biological state of the patient. But personal dose meters are not available. Even if they were available, there is the problem of inconsistent results which arise from irregular distribution of the dose, possible shielding of some portion of the body remote from the dose meter, or exposure of the meter to a higher dose than that experienced by the individual. These difficulties preclude the use of dose levels for classification of casualties. For these reasons a clinical classification of the patient is more practical and accurate, provided it is sufficiently flexible to permit subsequent reclassification as time passes and other information (such as results of haematological studies) becomes available.

When using a clinical classification it is important to remember that there may be symptoms due to stresses other than the acute radiation syndrome. Thus, nausea, vomiting and diarrhoea may be of psychogenic origin, and shock and unconsciousness may be the result of trauma. If the symptoms can be directly ascribed to radiation then it is possible to classify the casualty into one of the following categories:²

Category A. — Recovery is probable even without treatment. This category includes people who are asymptomatic or in whom there may be transient nausea lasting only a few hours but not beyond

TABLE 1 Guide for early sorting of unwounded radiation casualties.

Symptoms	Radiation category		
	A	B	C
Nausea	+	++	+++
Vomiting	—	++	+++
Diarrhoea	—	—	XX

+ Lasting less than 24 hours.
++ Lasting up to 24 hours.
+++ Early onset.
XX Onset within three days.

24 hours. The occurrence of vomiting will tend to move the patient into a more serious category. These patients require no treatment but should be observed over a period of time to ensure classification in the right category. The majority will have received a total body dose of less than 200 rads.

Category B. — Recovery is possible. This group embraces a wide spectrum of people. Some will require the utmost in supportive therapy for recovery; others will require little or no treatment. Patients of this group suffer nausea and vomiting. The onset of vomiting may be early, occurring within one or two hours of exposure. It may persist for 12 to 48 hours but should subside and be followed by a relatively asymptomatic period of from four days to two to three weeks.

Early diarrhoea does not occur. After a latent period, however, diarrhoea may develop during the cycle of severe haemopoietic depression (one to three weeks).

The group includes patients whose total white blood count and thrombocyte counts are depressed during the second to third week. Though this depression may be very severe (less than 200 cells), it may still be compatible with recovery. Lymphopenia is noted in the first three days.

Patients who experience depilation within two weeks should be classified in this group.

The dosage received by patients in this category is less than 1,000 rads and may be as low as 150-200 rads.

Category C. — Recovery is improbable when symptoms are early and progressive in nature. In these patients nausea and vomiting begin one or two hours after

		RADIATION CATEGORY		
		A	B	C
SURGICAL CATEGORY	1			X
	2			X
	3			X
	4	X	X	X

FIGURE 1 Classification of casualties according to combined radiation and surgical injuries. Low priority categories (expectant cases) are indicated by X.

exposure, progress, and are associated with persistent explosive diarrhoea occurring within 48 hours of exposure. Shock and prostration develop rapidly. Some patients exhibit evidence of central nervous system damage manifested by ataxia, nystagmus, muscle tremors, unconsciousness and, rarely, convulsions.

MANAGEMENT AND TREATMENT

Using these categories as a guide, early sorting can be devised according to Table 1. Urgency is not a consideration where recovery is possible. This is because there is a sufficient interval between the time of exposure and effect and because there is no specific treatment to prevent the effect of radiation.

Sorting of casualties and a rough determination of priority can be instituted even when a physician is not immediately available. Antiemetics may prevent vomiting in some individuals who might otherwise be considered category B patients. However, this is unlikely to affect patients exposed to higher dosages and may, therefore, be of further help in sorting.

Once a physician is available more accurate classification will be possible. At this stage it is unlikely that haematological tests can be performed and only

minimal care can be given. Little or no care is required if the injuries are due to radiation only.

Patients in category A are capable of self-evacuation to areas where haematological studies can be performed. These patients may require observation for a period of three to six weeks. Patients in category B should be removed as soon as possible to areas where more sophisticated investigation and supportive care are available. The use of antiemetics and sedation at this stage may be helpful. Some patients may become sufficiently dehydrated to warrant the administration of parenteral fluids, but the prophylactic use of antibiotics is not indicated. Those in category C should be given sedation and some supportive care. Observation may be necessary to confirm their classification in this category. Since most of these patients will die within one to four days, their immediate evacuation is not justified under the conditions of a nuclear attack.

Further classification can ensue in those areas where facilities for haematological studies are available.

The first problem is to identify rapidly those who require supportive therapy for recovery. This includes patients who experience marked lymphopenia within 24 hours, those with a total nucleated cell count of less than 2,000 in one week, and patients with total nucleated cell counts below 1,500 at any stage. In addition, patients with severe thrombocytopenia or even moderate platelet depression require specific care.

Management is directed toward prevention or control of infection and haemorrhage during the period of risk in order to permit recovery of the bone marrow. This usually includes isolation of the patient, barrier nursing techniques and administration of blood and platelet preparations.

The prophylactic use of antibiotics is liable to alter the intestinal flora and permit overgrowth with an untreatable organism which then invades the body. The only exception to this is where optimal care is available and the patient can be placed in a sterile environment. This is achieved by sterilizing the skin and

gastro-intestinal tract with oral non-absorbable antibiotics, using a combination with varying spectra of activity on a cyclic basis. In these circumstances it should be remembered that the organisms most likely to cause problems include enteric organisms, *Pseudomonas aeruginosa* and candida which may produce a septicaemia that is difficult to treat. The therapy for these patients frequently requires the use of ampicillin, the polymyxins, kanamycin and the antifungal agents nystatin and amphotericin B. It should be remembered also that in patients without white cells bacteriostatic agents are of little help in the control of systemic infection. Bactericidal drugs should be used instead where possible.

Platelets may be administered to patients suffering from thrombocytopenia when bleeding occurs. Where supplies are adequate, platelets may also be administered prophylactically to patients whose platelet count falls below 20,000 per cu. mm. In most instances these should be given as platelet rich plasma, the red cells being utilized for patients who are anaemic.

After the first few days there may be an onset of diarrhoea which may be bloody. This does not have the same serious prognosis as does diarrhoea earlier in the course of the disease. Treatment consists of sedation and careful attention to fluid and electrolyte imbalance. With adequate care, recovery occurs in some patients.

Under ideal circumstances, some patients with severe haemopoietic depression could benefit from bone marrow transplantation. While this is potentially life saving in patients who have received high radiation dosages, it may actually interfere with recovery in others exposed to lesser dosages. A decision in favour of marrow transplantation is therefore only feasible where reasonably accurate estimates of dosage can be made.

It may be necessary to sustain the patient for as long as eight weeks, by which time recovery should be established. The initial stages of recovery may be heralded by a rise in reticulocytes or platelets before there is any apparent change in white blood counts.

COMBINED INJURY EFFECTS

Casualties after a nuclear attack will probably suffer traumatic and thermal injuries as well as the effects of radiation. The assignment of priorities for evacuation and/or treatment will therefore be based on an assessment in the patient of each type of injury. In general, the disposal of the patient is thus determined by his surgical status. This is because injury from trauma or burns can be treated specifically, and urgency is of importance. The radiation injury, if survivable, has a latent period which eliminates the need for urgency. However, patients who have been exposed to a fatal dose of radiation do not require the same priority for surgical care which might otherwise exist.

For practical purposes it is desirable to use the classification of injured and burned patients described in *Emergency War Surgery*.³ This can be summarized as follows:

Category 1. — Casualties with minimal wounds or burns who, after simple first aid, can be directed to self-care or to the care of emergency welfare services.

Category 2. — Those needing simple, initial care, with further care deferred until a later date. Delayed treatment will result in little added risk.

Category 3. — Patients to whom early life saving treatment assures reasonable chances of survival.

Category 4. — Persons so critically injured or burned that their chances of survival are questionable even under the best circumstances. This group is often termed the expectant group.

These four categories of surgical injury are thus combined with the three categories of radiation injury in Figure 1. All patients in category C1, C2, C3, C4, B4 and A4 are treated on an expectant basis in a mass casualty situation. Urgent priority will prevail in categories A3 and B3, while patients in A2, B2 and B1 categories are accorded normal priority with deferred treatment. Patients in A1 category receive first aid and self-care and are discharged for observation of potential radiation damage.

In attempting to assess the additional hazard resulting from multiple injuries

it is difficult to prove any synergistic action. Effects of the two forms of injury may be additive, but when the injury from one source is slight it may have little effect on the outcome from injury from another source. This suggests that radiation injury falling into category A would have little effect on the outcome of surgical patients in categories 2 and 3. Likewise, minor surgical injury does not necessarily impair the possibility of recovery in patients of category B. However, B3 patients may very well be adversely affected by the combined effects of radiation and physical injury, thereby disproportionately decreasing the chances of recovery.

Patients with open wounds or severe burns obviously court an additional risk of infection and haemorrhage and are in greater danger during the period of haemopoietic depression. Healing may be delayed in patients exposed to moderately heavy irradiation (over 300 rads). This, in turn, will complicate the surgical injuries. Nevertheless, because of inability

to differentiate between higher and lower dosages received by patients in category B, these individuals are considered as potentially curable and handled as urgent cases.

SUMMARY

A clinical classification of radiation injury is useful for determining priorities of evacuation and treatment in a mass casualty situation. The treatment of the acute radiation syndrome is discussed briefly and the concurrent injuries from trauma or burns and their implications are also considered.

*Chairman, Defence Research Board panel on radiation protection and treatment.

1. Department of National Health and Welfare. Emergency Health Services Division. Casualties from nuclear weapons. Ottawa, 1964.
2. Behrens, C. F., ed. Atomic medicine. Ed. 4. Baltimore, Williams and Wilkins, 1964.
3. Department of National Health and Welfare. Emergency Health Services Division. Emergency war surgery; NATO handbook. Ed. 2. Ottawa, 1963.

555 University Avenue

Toronto Faculty Holds Open House February 12

Dental education will again be on public display when Toronto's Faculty of Dentistry stages its annual 'Open House' on Sunday February 12. This annual event provides opportunity for every one interested in dentistry — plus their families and friends — to visit the University of Toronto dental building and observe, through student exhibits and demonstrations, modern dental education in action. The dental building is located at 124 Edward Street, Toronto, off University Avenue and immediately south of the Hospital for Sick Children.

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Rôle du praticien dentaire dans les services de santé d'urgence

C. A. E. McCabe,* DDS, DHDP, Ottawa, Ontario

Advenant un désastre, les dentistes qui pourraient aider à dispenser les soins d'urgence représenteraient 30 pour cent du nombre de médecins disponibles. Le dentiste peut offrir cette aide précieuse grâce aux connaissances et à l'expérience qu'il possède pour traiter les hémorragies et le choc, effectuer le débridement et les sutures, réduire et immobiliser les fractures, traiter la douleur et les infections, et grâce aussi à sa dextérité manuelle. Il serait également en mesure de dispenser les premiers secours — y compris la respiration artificielle — les premiers soins des blessures de la poitrine, le soulagement de la douleur et le traitement du choc en vue de préparer les blessés pour leur évacuation. La sélection des cas de lésions faciales et buccales n'est pas le moindre des services qu'il peut fournir. Il peut servir d'assistant en chirurgie géné-

rale, insérer des tubes naso-gastriques, injecter des médicaments par voie intraveineuse et autres voies parentérales, placer des cathéters et, avec un entraînement approprié, administrer des vaccins et autres agents immunisants. Les dentistes qui auraient une formation spéciale en anesthésie et en hygiène publique, joueraient un rôle particulièrement important dans une situation d'urgence. Il est souhaitable que médecins et dentistes reçoivent ensemble la formation concernant les mesures à prendre en cas de désastre. Le dentiste a des responsabilités de trois sortes: (1) acquisition de connaissances suffisantes dans l'organisation des premiers secours au niveau local; (2) connaissance des usages de l'administration hospitalière et des activités de l'hygiène publique; (3) intérêt professionnel envers les problèmes thérapeutiques communs à la médecine et à la dentisterie.

Les médecins et infirmières du Canada ont pu jadis satisfaire aux demandes urgentes que leur ont imposé les guerres ou les désastres en temps de paix. Il y a toutefois peu de doute qu'advenant une attaque nucléaire, il y aura bon nombre de médecins et d'infirmières parmi les

millions de victimes. En effet quelque 50 pour cent des 22,000 médecins du Canada et probablement un pourcentage encore plus considérable des 85,000 infirmières de notre pays sont constamment à l'intérieur ou aux environs des hôpitaux situés dans les zones cibles probables. On

prévoit donc que les ressources en personnel médical et para-médical qui survivront ne pourraient à elles seules suffire à prodiguer à la fois les soins médicaux ainsi que les services d'hygiène publique et de bien-être. En effet, la nécessité de ces services s'accroît du fait des maladies occasionnées par les intempéries, la fatigue, la sous-alimentation, les retombées radioactives ainsi que par les autres sources d'infection et de contagion. Le personnel, les approvisionnements et les locaux auront un fardeau bien au delà de leur capacité. Il faudra de l'aide provenant des membres de professions sœurs dans le domaine de la santé, ainsi que des personnes non professionnelles ayant une formation technique dans ce domaine.

APTITUDES DÉONTOLOGIQUES QUI PEUVENT SERVIR DANS LES SITUATIONS OÙ LES VICTIMES SONT EN GRAND NOMBRE

Exception faite des victimes parmi ses membres, on peut s'attendre à ce que la profession dentaire fournisse un renfort d'environ 30 pour cent. Parmi le personnel professionnel du domaine de la santé, les dentistes sont au premier rang quant au nombre, après les médecins et les infirmières. Bon nombre de nos 6,396 dentistes canadiens¹ périeraient aussi sans doute lors d'un désastre national, mais les Services de Santé d'Urgence espèrent que les survivants auront reçu une formation suffisante pour leur permettre d'assumer quelques-unes des tâches médicales durant la période d'urgence. Le médecin est le pivot autour duquel tous les efforts convergent lors d'un désastre. En cas d'absence ou d'un nombre insuffisant, qui peut mieux le remplacer qu'un dentiste? Plus que dans toute autre profession, la formation du dentiste et ses études se rapprochent de celle du médecin. Le dentiste possède l'expérience nécessaire pour contrôler les hémorragies et traiter les états de choc, il connaît les principes du débridement, la suture des blessures et il sait comment réduire et immobiliser les fractures. De par sa formation et l'expérience pratique acquise il possède une dextérité remarquable. La coordination de ses mains et de sa vue atteint un niveau

très élevé par suite des soins qu'il prodigue pour soulager la douleur et éliminer l'infection chez ses patients.

FONCTIONS SUPPLÉMENTAIRES POSSIBLES

Il est vrai que lors d'une urgence nationale, bien des dentistes auront à faire face à des problèmes dépassant l'envergure des cadres de leur expérience journalière habituelle. Cependant sa formation, son habilité et l'expérience acquise par la pratique de sa profession ont préparé le dentiste canadien à recevoir la formation supplémentaire requise pour maîtriser assez rapidement des procédés techniques qui lui permettront d'accepter une part du fardeau. Lorsque les circonstances peuvent l'exiger il devrait être prêt à assumer la direction des équipes de soins d'urgence. A l'exception peut-être du classement des blessés (triage) qui normalement est fait par le chirurgien disponible qui a le plus d'expérience, le dentiste devrait pouvoir être presque complètement interchangeable avec ses confrères médecins à n'importe quel endroit des services de premiers soins d'urgence.

Elargir les cadres des fonctions du dentiste lors d'une urgence nationale n'est pas une idée nouvelle. Pendant la période d'activité militaire intense en Corée, ainsi que pendant la seconde guerre mondiale, des dentistes ont fait du service avec des unités médicales. Ils ont volontairement aidé les médecins à soigner les blessés dans les moments d'urgence. L'assignation d'un rôle précis à un dentiste en particulier dépend de l'organisation plus ou moins élaborée des services de santé d'urgence au niveau de sa localité. C'est pourquoi on ne peut définir actuellement les fonctions précises qu'on attribuerait aux dentistes. Cependant on considère que c'est dans le domaine des soins médicaux d'urgence que l'on requerra de façon plus pressante les équipes de personnel professionnel. Dans les situations où les victimes sont en grand nombre, les fonctions supplémentaires attribuées aux dentistes pourraient donc embrasser celles qui suivent:

(a) Secourisme, y compris mais non limité à la respiration artificielle, les

traitements d'urgence des plaies thoraciques ouvertes, le soulagement de la douleur, les traitements des états de choc et la préparation des victimes en vue de leur évacuation.

(b) Contrôle des hémorragies.

(c) Rétablissement et maintien des voies respiratoires libres et le cathétérisme intratrachéal y compris les trachéotomies.

(d) Débridement et pansement convenables et adéquats des plaies.

(e) Application de pansements et attelles.

(f) Triage des cas de lésions faciales et buccales.

(g) Chirurgie buccale.

(h) Administration des anesthésiques sous une surveillance médicale.

(i) Assistance au chirurgien dans les interventions autres que buccales.

(j) Tubage naso-gastrique y compris lavage et gavage selon les directives du médecin.

(k) Administration de sang entier et de solutions intraveineuses selon les directives du médecin.

(l) Administration de médicaments par voie parentérale selon les directives du médecin.

(m) Cathétérisme chez les deux sexes.

(n) Administration d'agents d'immunisation selon les directives du médecin.

L'Association dentaire canadienne a formulé dès 1951 sa ligne de conduite en matière de défense civile.² A son point de vue, c'est à titre de membres des équipes de soins médicaux d'urgence, avec les médecins, infirmières, et autres membres du personnel des services de santé, que les dentistes seraient le plus utiles. A cet égard le dentiste peut fournir une assistance incalculable en aidant à compléter le personnel requis dans les centres avancés de traitements et les hôpitaux d'urgence de 200 lits.

APTITUDES SPÉCIALES

La déclaration plus haut mentionnée de l'Association dentaire canadienne spécifie que tous les dentistes ayant une expérience ou une formation spécialisée devraient être assignés à des postes où leurs aptitudes et leurs connaissances seraient

pleinement mises à profit. Bon nombre de dentistes canadiens ont en plus acquis une formation spécialisée dans divers domaines, variant de l'anesthésie à la chirurgie buccale et l'hygiène publique. Avec peu de formation additionnelle et quelques notions sur les méthodes de réanimation et sur l'usage de l'appareil Haloxair pour l'anesthésie ainsi que sur l'emploi de l'équipement des hôpitaux pour la réanimation et la radiographie, il peut aussi soulager le radiologiste et l'anesthésiste de quelques-unes de leurs tâches en cas d'urgence.

PROJETS POUR LA FORMATION CONJOINTE DES MÉDECINS ET DENTISTES AINSI QUE DES ÉTUDIANTS EN MÉDECINE ET EN ART DENTAIRE

L'Association dentaire canadienne insiste cependant sur la nécessité d'une formation complémentaire pour préparer le dentiste aux responsabilités qu'il aura à assumer advenant un désastre majeur. Il est normal qu'un médecin prenne soin des victimes en cas de désastre, mais il ne peut le faire avec efficacité sans l'aide entière et bien ordonnée de tous les membres de l'équipe. Mais quel sera le rendement du dentiste s'il n'a pas eu la formation requise pour lui permettre d'agir à titre d'assistant compétent capable de diriger l'équipe advenant le cas où le médecin était lui-même blessé. L'Association dentaire canadienne insiste sur l'importance d'entreprendre cette formation en équipe; c'est-à-dire conjointement avec les médecins, les infirmières et les autres personnes qui devront s'associer pour résoudre les problèmes des soins à donner à des foules. Ce point de vue a été sanctionné par les Services fédéraux de santé d'urgence et sert de base aux SSU pour planifier et organiser la participation de la profession dentaire aux services de santé en cas d'une urgence nationale.

L'adhésion de la profession dentaire et une collaboration sincère de la part de la profession médicale sont essentielles pour bien organiser les cours et donner une bonne formation sur la traumatologie, y compris l'application des pansements et des attelles concernant les divers genres de fractures qui ne sont pas habituelle-

ment du domaine de la profession dentaire, le secourisme et le transport des victimes, le diagnostic et les premiers soins aux personnes dangereusement malades, les accouchements d'urgence et le soin de ceux qui subissent des troubles émotifs. Les démonstrations sur les méthodes de respiration artificielle, sur le massage cardiaque, l'insufflation conjointe au massage, sur l'usage des appareils de réanimation, sur les transfusions de sang et des diluants du plasma, etc., devraient inclure si possible de la pratique sur des mannequins. L'uniformité des méthodes de traitements et le travail en équipe augmenteront l'efficacité en cas d'urgence. Pour ce faire, les cours et les démonstrations devraient autant que possible être suivis conjointement par les étudiants et praticiens en médecine et en art dentaire, dans les écoles de médecine et d'art dentaire.

PROJETS À L'ESSAI ET COURS SUR LES SERVICES DE SANTÉ D'URGENCE

Dès 1960-61, la Faculté de chirurgie dentaire de l'Université de Montréal entreprit un projet de cours en 10 leçons pour les étudiants en art dentaire. Ce projet fut abandonné en 1961-62 car plusieurs conférenciers n'ont pu continuer leur collaboration. Il fut repris en 1965-66 sous une forme modifiée. Leur nouveau cours en 11 leçons insiste moins sur les renseignements concernant l'organisation des services de santé en cas de désastre afin de pouvoir intensifier l'enseignement sur les soins médicaux à prodiguer à des foules. Les 56 étudiants de la classe des diplômés de 1966 ont suivi ces cours. On s'attend à ce que ces cours soient de nouveau donnés cette année.

La Faculté de chirurgie dentaire de l'Université de Toronto invita aussi ses étudiants, en 1960-61, à suivre une série de cinq cours préparés à l'intention des étudiants en médecine. Ces cours traitaient des soins médicaux à donner lorsque les victimes sont en grand nombre. A cause de certaines raisons, cette série, apparemment, ne fut pas répétée. Cependant une série de cinq cours sur le secourisme a toujours été donnée en

troisième année d'art dentaire et sans doute dans quelques-uns de ces cours on fait allusion aux situations où les victimes sont nombreuses, mais aucun de ces cours ne traite spécifiquement des désastres. Toutefois, les cours réguliers, tels que les cours de la chirurgie générale et de médecine générale, mentionnent certains problèmes qui peuvent survenir dans des situations d'une telle envergure. La Faculté croyait à ce temps-là que les cours sur le rôle des dentistes en cas de désastre seraient plus efficaces si ce genre d'enseignement était organisé pour les dentistes récemment diplômés par le truchement des cadres réguliers de la profession dentaire. On exprima l'opinion que les étudiants ne prennent pas au sérieux des activités de ce genre lorsqu'elles ne sont pas incluses dans le curriculum.

On rapporte qu'à l'Université McGill, au moins jusqu'au mois de juillet 1962, on ne porta pas spécialement attention à ce sujet. Cependant le programme consacre deux heures à traiter du rôle du dentiste dans les situations où il y a désastre. Cet enseignement est basé principalement sur les matières que comporte le cours d'Arn-prior. De plus, chaque étudiant prend contact avec les techniques utilisées dans les salles d'opérations et les hôpitaux et acquiert ainsi beaucoup d'expérience sur les soins d'urgence des lésions buccales et faciales.

La Faculté dentaire de l'Université du Manitoba inaugura aussi un projet de cours l'an dernier. Ce projet consiste en quatre leçons sur les soins à donner aux victimes lorsqu'elles sont en grand nombre. La Faculté appuya aussi un changement à l'annuaire de l'Université pour la prochaine année académique. Ce changement consiste à inclure aux chapitres de la chirurgie buccale la phrase suivante "Des cours seront aussi donnés sur les soins médicaux en cas de désastre et le rôle que le dentiste devra peut-être assumer."

A la fin du mois de mars 1962, quelque 2,500 membres des professions du domaine de la santé avaient déjà suivi des cours au Collège canadien de la défense civile.³ Parmi ce nombre, on compte 558 médecins et 120 dentistes, soit une proportion de 4.6 médecins par dentiste. Pendant la dernière

année fiscale, 1965-66, 114 médecins et 14 dentistes ont assisté aux cours de ce genre, donnés au Collège canadien des mesures d'urgence.

FORMATION SUBSÉQUENTE CONTINUELLE

Le programme de formation que nous venons de suggérer au niveau universitaire aussi bien qu'au Collège canadien des mesures d'urgence devrait être complété au niveau local par la participation à un système quelconque de formation continue pour toutes les professions du domaine de la santé et le personnel paramédical. Ce genre de formation continue perfectionnerait la planification et augmenterait l'habileté et l'efficacité de chacun des membres de l'équipe. De cette façon chacun saurait ce qu'on attend de lui en cas de désastre. Les services de santé d'urgence anticipent que l'augmentation de l'intérêt des hôpitaux et des municipalités et la planification en cas de désastre local ou national, devraient bientôt permettre à la profession dentaire et à ses membres individuels de mieux s'intégrer aux équipes municipales des soins médicaux et de santé publique organisés pour fins d'urgence.

OPINIONS AUX ETATS-UNIS

Nous croyions pouvoir affirmer comme l'a fait un comité d'étude aux Etats-Unis d'Amérique,⁴ que pour la planification, en cas de désastre, le dentiste a une triple responsabilité.

Premièrement, une responsabilité civique ou municipale. Celle d'acquérir suffisamment de connaissances et d'expérience pour favoriser, développer et enseigner la planification du secourisme avancé et du programme d'abris en cas de désastre.

Deuxièmement, une responsabilité administrative. Celle de se familiariser suffisamment avec les procédures d'administration hospitalière et de santé publique. Ceci lui permettrait d'assumer au besoin un rôle réellement important pour assurer le fonctionnement ininterrompu de l'ad-

ministration des centres avancés de traitements, des hôpitaux d'urgence de 200 lits et des hôpitaux déjà établis. En présence d'un désastre, il pourrait aussi assurer l'administration générale des mesures de santé publique qui touchent aux abris communautaires, aux systèmes sanitaires, à la protection et à la conservation de l'eau potable, à la contamination par la radioactivité, etc.

Troisièmement, le dentiste a la responsabilité professionnelle de donner aux victimes les soins qui relèvent autant de la profession médicale que dentaire, tels que: le diagnostic des symptômes buccaux des maladies organiques, le triage dentaire, l'administration de remèdes par voie buccale ou intramusculaire et intraveineuse, la suture chirurgicale des déchirures, des fractures ou blessures, le contrôle des hémorragies, la réanimation y compris le rétablissement d'une respiration convenable, les mesures psychologiques à prendre envers les patients, l'identification des sinistrés par examen dentaire. Il doit élargir ses connaissances en pharmacologie en vue de prescrire au besoin pendant les périodes d'urgence. D'autres responsabilités pourront surgir, y compris celle de pourvoir aux traitements dentaires.

PROGRAMMES DE FORMATION AUX ETATS-UNIS

L'Ecole dentaire de l'Université d'Alabama publia en 1965 un rapport dans lequel on exprime l'opinion que l'étudiant ne peut obtenir la motivation, l'endocrinisation et la formation, dans un ensemble de cours inscrit sous le titre de défense civile dans le curriculum, surtout si ces cours sont donnés à l'étudiant senior à un moment trop rapproché de sa graduation. L'Ecole vient de terminer la première année d'un projet à l'étude et prévoit que ses étudiants auront reçu 83 heures d'instruction pendant les quatre années de leur éducation. Le rapport prétend que de ce nombre d'heures, seulement 29 devront être ajoutées au curriculum pour la présentation de certaines matières que l'Ecole n'a pu adapter ou incorporer à son curriculum actuel.⁵

L'Ecole de Médecine de l'Université Tufts a aussi publié le rapport final qui concerne son projet de cours, sur la préparation au désastre. Préparé à l'intention des étudiants en chirurgie dentaire, ce cours n'enseigne pas uniquement le secourisme professionnel, il a pour but de donner à l'étudiant une expérience réelle et individuelle à titre de membre d'une équipe qui traite le genre de patients dont il est question dans les désastres. Il vise aussi à renseigner l'étudiant sur la guerre chimique, biologique et radiologique, sur le programme qui concerne les abris, les services médicaux auxiliaires ainsi que la planification actuelle pour prémunir contre les catastrophes à venir. Leur projet consiste en un minimum de huit cours de deux heures chacun, au moins 10 séminars de deux ou trois heures dans des hôpitaux, la visite d'un centre d'entraînement des services d'urgence et environ cinq heures supplémentaires de classe suivies d'un examen sur les soins d'urgence. Un manuel qui décrit pour l'étudiant quelques-uns des principes qui servent de base pour les soins d'urgence est inclus au rapport publié par cette école.⁶

On doit signaler cependant, que les programmes de formation ne peuvent être identiques aux Etats-Unis et au Canada. Les Américains ont le service militaire obligatoire; en conséquence dans leur service militaire leurs dentistes sont donc très susceptibles d'avoir besoin d'une formation et de connaissances intensives sur les soins médicaux d'urgence en cas de désastre.

CONCLUSION

La compétence intradisciplinaire du dentiste dans le domaine des soins d'urgence peut être acquise aux écoles dentaires, soit en incluant les matières nécessaires dans le curriculum des cours réguliers, soit par des cours supplémentaires donnés aux dentistes gradués. Quant à sa compétence extradisciplinaire, le dentiste ne peut l'acquérir sans un appui réel et

des directives d'autres professions. Les médecins et les autres professions possèdent la compétence nécessaire pour enseigner à un noyau de dentistes les principes médicaux hospitaliers et de santé publique. Avec l'aide de dentistes spécialisés dans divers domaines, ce groupe à son tour, pourrait contribuer à la formation des sous gradués et des praticiens dentaires. Le meilleur temps et le meilleur endroit pour entreprendre la formation du dentiste au rôle qu'il aura à jouer en cas d'urgence est sans aucun doute, durant la période de ses études de sous gradué.

En résumé, lors d'un désastre, les membres de la profession dentaire peuvent être appelés à assumer des responsabilités d'urgence au delà de la portée de leur pratique habituelle. Néanmoins, la compétence qu'ils ont acquise dans leur propre domaine les a préparés à fournir avec un minimum de formation supplémentaire, les services qu'on leur demandera pour seconder les soins médicaux d'urgence et les autres services de santé d'urgence. On espère que la planification et l'organisation conjointes pour donner une formation au niveau universitaire à tous les professionnels concernés seront considérées par toutes les facultés médicales et dentaires au Canada.

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Le traitement d'urgence des lésions maxillo-faciales

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Les lésions maxillo-faciales exigent des soins d'urgence particuliers, comme le dégagement des voies respiratoires, l'arrêt des hémorragies et le traitement de l'état de choc. Les structures faciales doivent toujours être soutenues, la face du malade doit être tournée vers le bas. On doit tenir compte, dans toutes les phases du traitement, des facteurs psychogènes qui jouent un rôle important dans l'état de choc. L'évacuation rapide du malade vers un centre chirurgical où il recevra des soins médicaux et dentaires, est essentielle.

Le traitement d'urgence des lésions maxillo-faciales exige des mesures spéciales pour préserver la vie, restaurer les fonctions dentaires et l'esthétique du visage. Ces derniers objectifs ne peuvent être réalisés que par une équipe de médecins et de dentistes travaillant ensemble. A la suite d'un désastre, les premiers soins doivent être dispensés le plus rapidement possible, et ils ne pourraient vraisemblablement être entrepris que par des auxiliaires.

Les caractéristiques générales des lésions maxillo-faciales décrites ici indiquent les symptômes dont les secouristes devront s'occuper (premier échelon) avant

que le traitement soit poursuivi par le personnel qualifié (deuxième échelon).

1. Lésions courantes.—Elles sont dues à des accidents, des chutes, des coups de poings etc. Elles sont caractérisées par des fractures linéaires simples. La fracture est souvent ouverte, rarement comminutive, les déplacements osseux ou les pertes de tissus sont peu importants. Il n'y a pas d'état de choc, l'état général du patient est bon.

2. Ecrasement.—Comme le nom l'indique, ces lésions sont dues à un écrasement provoqué par l'effondrement des bâtiments, les accidents d'automobile ou d'avion. Les fractures comminutives multiples avec déplacement important sont fréquentes. Les tissus mous sont meurtris et le choc peut être grave.

3. Balles et éclats d'obus.—Ces lésions sont causées par des projectiles à haute vitesse, qui provoquent de graves fractures comminutives ouvertes, avec perte d'os et de tissu mou. Lorsqu'une balle ou un éclat d'obus pénètre dans la face, le point d'entrée est relativement petit, selon la taille du projectile. Sous l'impact, l'os se brise en morceaux et des esquilles sont projetées dans les tissus mous où elles causent de graves dégâts. La blessure de sortie est grande, et il y a perte de tissu. Des fragments de vêtement, des saletés etc., sont introduites dans la plaie par le corps étranger, créant une septicémie et rendant le débridement nécessaire.

4. *Attaques aériennes.*—Dans cette catégorie, les lésions sont une combinaison des lésions par écrasement et par projectile. Les tissus sont soumis à un écrasement et aux blessures ouvertes des projectiles. Il va sans dire que l'état de choc grave est fréquent dans ces cas.

Les premiers soins comportent d'abord des mesures vitales comme le dégagement des voies aériennes, l'arrêt des hémorragies et le traitement de l'état de choc. On devra noter et examiner les autres blessures. Les tissus doivent être soutenus pour maintenir les mesures d'urgence déjà prises et pour assurer la conservation des os et des tissus mous.

Si la victime est consciente, il est aisé d'examiner sa respiration, le choc et les autres lésions. Si le malade est inconscient, les capacités de diagnostic seront soumises à une dure épreuve pour effectuer ces examens.

La première mesure consiste à dégager les voies respiratoires. Si la symphyse mentonnière est détruite, l'attache antérieure de la langue est perdue et celle-ci tombe en arrière, obstruant la glotte. La tuméfaction des parties molles du plancher de la bouche, le sang, la salive, les corps étrangers logés dans la gorge, comme les appareils de prothèse, les débris osseux, les dents etc., peuvent rendre la respiration difficile.

La face du malade doit être tournée vers le bas, la langue tirée en avant, la voie respiratoire doit être dégagée en utilisant les doigts comme un racloir. Si son attache antérieure est déchirée, il peut être nécessaire de passer un fil de suture à travers la langue et de le fixer à la face. La trachéotomie est rarement nécessaire mais elle doit être faite sans délai si la situation l'exige.

L'arrêt des hémorragies est rarement difficile. Des bandages de compression sont d'ordinaire suffisants.

Lorsque la respiration est rétablie et que les hémorragies sont arrêtées, on doit faire un bandage 'en tonneau' pour immobiliser les structures faciales, ce qui contribuera à garder les voies respiratoires libres, à prévenir les hémorragies et à soulager la douleur. En posant ce bandage il faut prendre soin de conserver tous les fragments d'os et de tissu mou. Ce qui est d'une importance primordiale pour la reconstitution chirurgicale de la fonction et de l'esthétique.

On ne doit ménager aucun effort pour empêcher le choc. Ces efforts doivent être entrepris dès les premiers soins, au premier échelon du traitement (équipes rassemblant les blessés) et les malades en état de choc doivent être évacués en priorité pour que le traitement soit poursuivi par le personnel qualifié, au deuxième échelon (centres de traitement). La peur d'être défiguré est une des principales causes émotives du choc. L'amabilité et le réconfort sont donc des éléments essentiels du traitement dans toutes ses phases.

Le malade doit toujours avoir la face tournée vers le sol, qu'il soit couché, assis ou debout. Cette position permet de rejeter de la bouche la salive, le sang et les corps étrangers.

Une fois ces premiers soins administrés sur place, le malade devrait être dirigé vers une clinique maxillo-faciale dans les meilleures conditions pour subir les traitements chirurgicaux qui rétabliront les fonctions et l'esthétique du visage.

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Congrès national

Le programme du congrès du centenaire

Les préparatifs vont bon train à Toronto, où l'Association dentaire canadienne et celle de l'Ontario doivent tenir en 1967 la réunion du centenaire. Les séances de travail du Conseil des Gouverneurs de l'ADC se tiendront du 10 au 13 mai. Le Congrès national aura lieu du 14 au 17 mai. Toutes les réunions se dérouleront à l'hôtel Royal York.

L'événement sera couronné par la célébration du 100ème anniversaire de l'organisation de l'art dentaire en Ontario. Certaines innovations seront adoptées à cet effet. Les déjeuners, notamment, se dérouleront selon une formule nouvelle. Au cours des trois déjeuners prévus, d'éminentes personnalités canadiennes seront invitées à parler du passé, du présent et de l'avenir du Canada. Il s'agit de messieurs A. W. Trueman, ancien membre du Conseil du Canada, actuellement doyen de la Faculté des Arts de l'Université Western Ontario; Don W. Gullett, ancien secrétaire de l'ADC, et Arthur Porter, chef du département de l'Organisation scientifique du travail, de l'Université de Toronto. A cause de ces causeries, les traditionnelles séances de travail et cérémonies d'installation de l'ADC et de l'ADO seront réduites à des périodes de 15 minutes aux déjeuners du lundi et du mercredi.

A l'occasion de ce centenaire, les congressistes pourront aussi contempler une exposition sans précédent d'objets dentaires anciens et modernes qui retracera l'évolution de l'art dentaire canadien. Chaque congressiste recevra une brochure-souvenir sur les 100 ans d'histoire de la dentisterie organisée en Ontario.

Parmi les principaux orateurs et conférenciers, citons les docteurs Harry Sicher, professeur honoraire à la Loyola

University School of Dentistry, à Chicago; H. M. Worth, de Vancouver, radiologue de réputation internationale; D. D. Krajicek, chef des services dentaires au US Veterans Administration Centre, Wadsworth, Kansas; L. W. Burket, doyen de la Faculté dentaire, University of Pennsylvania. Le docteur D. G. Woodside, de Toronto, prononcera la conférence dédiée à la mémoire de George Wellington Grieve. Le programme prévoit aussi un panel sur le problème de la douleur en dentisterie.

Les sections d'endodontie, de chirurgie buccale, d'orthodontie, de périodontie, de prosthodontie, de pédodontie de l'ADC se réuniront également à Toronto. Les hygiénistes dentaires et les assistantes dentaires préparent aussi des réunions semblables.

Les séances scientifiques et les expositions commerciales iront de pair avec un remarquable programme de festivités. Celles-ci débiteront le dimanche soir 14 mai. Une 'réception d'anniversaire' 1867-1967 aura lieu le lundi soir. La soirée du mardi se passera aux terrasses de cafés, et la soirée du mercredi sera réservée au banquet en l'honneur des présidents des deux associations. Nombre d'activités attrayantes sont également prévues pour les dames.

Les conférences porteront sur la radiologie, la prothèse, l'orthodontie et la maîtrise de la douleur

Huit conférenciers de marque apporteront aux participants du congrès du centenaire de l'Association dentaire canadienne et de celle de l'Ontario, un aperçu des dernières connaissances en divers domaines de l'art dentaire.

Le Dr H. M. Worth, de Vancouver, traitera de la relation entre la technique radiographique et l'interprétation radiologique, le lundi 15 mai, dans la matinée. Le mardi 16, toujours dans la matinée, il parlera de la radiologie en périodontie. Diplômé en médecine et en dentisterie du Guys Hospital de l'Université de Londres, le Dr Worth fut pendant longtemps radiologue et professeur de radiologie au Guys Hospital. Il a également occupé plusieurs autres postes importants en Angleterre. Par la suite, il a été profes-

seur de radiologie à la Faculté de chirurgie dentaire de l'Université de Toronto.

Le lundi 15 mai, dans la matinée, le Dr D. D. Krajicek, du US Veterans Administration Centre, de Wadsworth, Kansas, parlera devant les membres de l'Académie canadienne de prothèse. Le mardi 16, dans la matinée, il traitera des problèmes d'esthétique chez les patients qui ont perdu leurs dents depuis longtemps. Le jeudi après-midi, il parlera du problème esthétique chez le patient qui reçoit une prothèse immédiate. Le Dr Krajicek a fait ses études à la faculté dentaire de l'Université de Kansas City, il est diplômé du Board of Prosthodontics des Etats-Unis, de celui du Kansas et de celui du Missouri. Il est actuellement examinateur du Specialty Board of Prosthodontics de l'Etat du Kansas.

On entendra le Dr L. W. Burket, doyen de la faculté dentaire de l'Université de Pennsylvanie le mardi 16 mai dans l'après-midi, et le mercredi 17 dans la matinée. Il traitera du diagnostic des lésions buccales courantes, et en particulier de celui de la leucoplasie buccale et du lichen plan. A propos des maladies communes de la langue, il montrera comment cet organe sert d'indicateur de la santé générale. Le Dr Burket est dentiste diplômé de l'Université de Pennsylvanie et médecin diplômé de l'Université Yale. Il a occupé plusieurs postes de professeur et de consultant en pathologie buccale et en médecine buccale à l'Université Yale, à l'Université de Pennsylvanie, au Walter Reed Hospital, au Philadelphia Naval Hospital, au Jefferson Medical College de Philadelphie, au Pennsylvania Hospital et au Philadelphia General Hospital. Il a été consultant pour l'armée et la marine des E.-U., le public Health Service et la Veterans Administration.

Le lundi 15 mai, dans l'après-midi, le Dr Harry Sicher, professeur honoraire d'anatomie et d'histologie à la faculté dentaire de l'Université Loyola, à Chicago, parlera de l'anatomie fonctionnelle de l'articulation temporo-maxillaire devant les membres de l'Académie canadienne de périodontie. Le mardi matin, il fera une conférence générale. Médecin diplômé de l'Université de Vienne, le Dr Sicher est venu à Chicago en 1939. Il

travaille à la faculté dentaire Loyola depuis 1942. Il a consacré la plus grande partie de sa carrière à l'anatomie et à l'histologie. Il est actuellement directeur de la préparation à la recherche, à la faculté dentaire de l'Université Loyola. Il donne également des cours à l'Université Northwestern, à l'Université du Nebraska et à celle de Porto-Rico.

Le Dr D. G. Woodside, de Toronto, qui prononcera le lundi 15 mai dans l'après-midi la conférence George Wellington Grieve, examinera les relations futures entre l'orthodontie et la pratique générale. Le Dr Woodside est professeur et chef du département d'orthodontie de l'Université de Toronto. Il exerce également des fonctions de professeur et de consultant aux Ontario Hospital for Crippled Children, Toronto Hospital for Sick Children, Burlington (Ontario) Orthodontic Research Centre et Charles Tweed Foundation for Orthodontic Research.

Une discussion d'experts rassemblant un psychiatre, un neurologue et un dentiste, prévue pour le mercredi 17 dans l'après-midi, portera sur les dernières connaissances dans le domaine de la maîtrise de la douleur. Les experts seront les docteurs Benjamin Geneen, S. P. Starkman et C. D. Torneck, tous de Toronto. Médecin diplômé de l'Université d'Edimbourg, le Dr Geneen est psychiatre consultant. Le Dr Starkman, diplômé de l'Université de Toronto, est médecin traitant au New Mount Sinai Hospital et professeur de clinique à la Faculté de médecine de l'Université de Toronto. Le Dr Torneck est assistant professeur à la Faculté de chirurgie dentaire de l'Université de Toronto et consultant en endodontie au New Mount Sinai Hospital.

Conférence du Dr Nikiforuk devant l'Académie de pédiodontie

Le Dr Gordon Nikiforuk, ancien professeur de l'Université de Toronto, qui est actuellement à la faculté dentaire de l'University of California, à Los Angeles, prononcera une conférence devant l'Académie canadienne de pédiodontie, pendant le congrès du centenaire de l'ADC-ADO (14-17 mai 1967).

Le Dr Nikiforuk a été nommé directeur des cours de biologie buccale et chef de la division de biologie buccale de la faculté de Los Angeles.

L'exposition artistique du centenaire de l'ADC et de l'ADO

Tableaux, esquisses, dessins, sculptures, céramiques, ouvrages d'artisanat, bois ouvré, arrangements floraux, photographies, diapositives — tout a été prévu à l'exposition qui accueillera les délégués et les invités du congrès du centenaire de l'ADC et de l'ADO. Le clou de l'exposition sera la 'section du centenaire' exclusivement consacrée au thème 'Cent ans d'histoire.'

Les dentistes, les membres de leur famille ou leurs employés qui désireraient exposer certaines de leurs œuvres peuvent en envoyer des échantillons. Des prix seront attribués aux plus remarquables d'entre elles. Pour tous renseignements, écrire à H. G. Poyton, Faculté de chirurgie dentaire, Université de Toronto, 124 rue Edward, Toronto 2, Ontario.

Au parlement fédéral

Le régime d'assistance du Canada couvre les soins dentaires

Le gouvernement fédéral assumera en partie le coût des soins de santé, y compris les soins dentaires, dispensés aux personnes dans le besoin en vertu des législations provinciales. Le détail de cette nouvelle formule de frais partagés figure dans le Régime d'assistance du Canada (Projet de loi C-207) voté le 8 juillet 1966 par la Chambre des Communes.

La loi contient également une disposition spéciale qui permet aux provinces de réclamer une partie du coût des soins de santé dispensés aux personnes qui reçoivent une aide en vertu de plusieurs autres lois, notamment la Loi d'aide aux vieillards, la Loi sur les personnes aveugles, la Loi sur les invalides et la Loi sur la sécurité de la vieillesse. Cet article stipule que les dépenses effectuées en faveur de ces personnes peuvent être réclamées rétroactivement jusqu'au 1er avril à

condition qu'un état des besoins soit établi à n'importe quel moment avant le 31 mars 1967.

Canada

Démission du Dr Macdonald, recteur de l'UCB

Le premier et le seul dentiste qui ait occupé les fonctions de recteur d'une université vient d'annoncer son intention de démissionner. D'après une nouvelle de la Presse Canadienne du 27 octobre, M. J. B. Macdonald, recteur de l'Université de Colombie britannique depuis cinq ans, aurait déclaré qu'il quitterait son poste le 30 juin 1967. Son successeur n'a pas encore été choisi.

Le docteur Macdonald a annoncé sa décision dans une lettre adressée le 20 octobre au juge Nathan Nemetz, président du Bureau des gouverneurs de l'UCB. Dans cette lettre, il aurait répété sa conviction que le remplacement périodique du chef de l'université était préférable pour celle-ci. Il a l'intention de se consacrer à d'autres tâches dans le domaine de l'enseignement.

Agé de 48 ans, le Dr Macdonald a été directeur de la Forsyth Dental Infirmary, à Harvard. Né à Toronto, il a reçu son diplôme de dentiste de l'Université de Toronto, puis il a obtenu une maîtrise de l'University of Illinois, et enfin un doctorat de microbiologie buccale de la Columbia University.

L'Association

Le Comité des services dentaires organise la préparation d'un programme national d'assurance dentaire pour les enfants

Lors de sa réunion des 20 et 21 octobre, le Comité des services dentaires de l'ADC a commencé à étudier la préparation d'un programme national d'assurance dentaire pour les enfants. Le Conseil des Gouverneurs, au cours de sa réunion de 1966, avait chargé "le Comité des services dentaires d'élaborer, avec l'avis des autres conseils, comités, sections et membres

corporatifs intéressés, un régime d'assurance dentaire qui satisfasse au mieux les intérêts de la santé des enfants et de tous les autres groupes concernés."

Après avoir passé en revue les points de vue exprimés par divers groupements dentaires et par divers particuliers, le comité a décidé:

D'établir les principes qui serviront à orienter la préparation du programme national d'assurance dentaire pour les enfants;

D'analyser la documentation concernant le nombre d'enfants et leurs besoins dentaires de façon à préparer des projets précis.

Le comité a d'autre part résolu de prendre les mesures suivantes:

Etude des documents actuels sur les régimes dentaires du bien-être social au Canada, en vue d'adopter des principes qui pourraient s'appliquer à ces régimes;

Consultation des membres corporatifs à propos d'une révision de la déclaration définissant la politique de l'ADC sur la planification des services dentaires au Canada.

Etaient présents à la réunion, les docteurs H. G. Pettapiece, de Parksville, Colombie britannique, président du comité; J. M. Carefoot, Oshawa, Ontario; P. E. Currie, London, Ontario; A. H. Ervin, Dartmouth, Nouvelle-Ecosse; Henri Hamel, Québec; Gunnar Lie, Weston, Ontario; C. B. Allaby, Moncton, Nouveau-Brunswick; et R. A. Connor, du ministère de la Santé nationale et du bien-être social, à Ottawa.

Réunion du comité d'assurance

Le Comité consultatif spécial de l'Association dentaire canadienne sur l'assurance commerciale a exprimé sa "satisfaction au sujet des termes et conditions des régimes d'assurance et de retraite qui sont actuellement offerts aux membres de l'ADC." Telle est la conclusion d'une étude complète portant sur tous les régimes organisés par l'ADC. Les membres du comité d'assurance — qui sont maintenant les fiduciaires de ces régimes — ont étudié le programme complet avec l'administrateur des régimes, au cours d'une réunion

tenue au siège social de l'ADC les 31 octobre et 1er novembre.

Le comité a demandé que l'organisme Professional and Industrial Pensions Limited (qui administre les régimes créés par l'ADC) fasse l'objet d'une vérification assurant que (1) tous les fonds versés à PIPL par les dentistes sont virés à la compagnie d'assurance ou de fiducie convenue, au moment et suivant la manière et le montant indiqués; (2) les primes non dues et reçues à la suite du décès d'un assuré, ou pour toute autre cause, sont renvoyées à l'assuré ou à sa succession; (3) les comptes de toutes ces sommes sont correctement tenus et que les remboursements et les escomptes dus aux dentistes sont dûment effectués; (4) la PIPL et ses employés sont liés par des obligations suffisantes; et que (5) les fonds qui sont remis à la PIPL en attendant d'être transférés à la compagnie d'assurance ou de fiducie convenue, sont correctement protégés.

Faisant remarquer les difficultés que certains dentistes rencontrent pour obtenir une assurance contre la négligence professionnelle, le comité a vivement recommandé que les membres corporatifs de l'ADC organisent une assurance collective couvrant tous leurs membres.

D'autre part, le Comité:

A réitéré et augmenté d'une note explicative la déclaration en sept points des principes qui régissent les relations entre l'Association et les compagnies d'assurance commerciale (déclaration qui fut adoptée en 1964 par le Conseil des gouverneurs);

A convenu de tenir une autre réunion avec le Comité pour l'assurance du Collège royal des chirurgiens-dentistes de l'Ontario, le 6 janvier 1967, afin de définir les attributions en vue d'une enquête comparant les opérations des sociétés Professional and Industrial Pensions Limited et Canadian Dental Service Plans Incorporated. Cette enquête a été demandée par le CRCDO dans une résolution soumise au Conseil des gouverneurs en 1966.

Assistaient à la réunion, les docteurs P. S. Christie, de Halifax, président du comité; R. L. Rasmussen, de Calgary; D. C. Steeves, de Moncton, Nouveau-Brunswick; O. F. Wright, de Vancouver; George Zimmerman, de Montréal; O. J. Yule, de To-

ronto; K. F. Pownall, de Toronto; W. J. Spence, de Toronto; et J. T. Staddon, gérant de la société PIPL, de Toronto.

Moratoire sur la reconnaissance de nouvelles spécialités

Comme nous l'avons indiqué dans le numéro de septembre du Journal, à la page 558, un moratoire sur la reconnaissance de nouvelles spécialités par l'Association dentaire canadienne est actuellement en vigueur.

La décision du Conseil des Gouverneurs figure dans les *Délibérations* de 1966. Il y est dit que le fait que la multiplication des spécialités pouvait être contraire à l'intérêt public a soulevé des inquiétudes. Par conséquent, il a été résolu de procéder à une révision de la politique actuelle de l'Association à propos des spécialités et, de plus, il a été résolu qu'un moratoire serait déclaré sur la reconnaissance de nouvelles spécialités jusqu'à ce que le rapport de cette étude ait été soumis au Conseil des Gouverneurs.

Organismes dentaires

Le ministre de la santé et le Collège dentaire de Saskatchewan étudient les besoins et la demande de soins dentaires

Le ministre de la santé de la Saskatchewan, M. David Steuart, vient de recommander un plan visant à former des auxiliaires dentaires qui travailleraient dans les cabinets des dentistes afin d'augmenter le volume des soins dentaires que la province peut fournir. Accompagné de fonctionnaires de son ministère, le ministre a rencontré le conseil du Collège des chirurgiens dentistes de la Saskatchewan le 3 octobre.

Ce plan prévoit que les dentistes emploieraient et dirigeraient les auxiliaires et qu'ils seraient légalement responsables de leur travail.

De leur côté, les représentants du Collège ont fait valoir qu'ils étaient inquiets du vaste écart qui existe entre les besoins et la demande de soins dentaires, tel que le révèle un récent sondage auprès des dentistes de la province. Le ministre et le Collège ont décidé de créer un comité

pour étudier ce problème. Le Collège a désigné trois dentistes de Regina, les docteurs T. F. Wihak, C. N. Bolen et R. O. Brett pour le représenter dans le comité. Le ministère de la santé nommera également trois membres.

Facultés dentaires canadiennes

Cours au département d'orthodontie de l'Université de Montréal

Au début d'octobre, avait lieu au département d'orthodontie de la Faculté de chirurgie dentaire de l'Université de Montréal, un cours post-scolaire donné par le docteur Charles J. Burstone, directeur du département d'orthodontie à la faculté dentaire de l'Indiana University. Vingt et un orthodontistes canadiens et américains étaient inscrits, certains venant d'aussi loin que San Francisco. Il y avait une forte délégation de professeurs des départements d'orthodontie de la Faculté de chirurgie dentaire de Toronto et de Montréal.

Ce cours d'une semaine portait sur les principes biomécaniques sur lesquels reposent les traitements d'orthodontie, et plus particulièrement les traitements effectués par la méthode de 'l'arcade segmentée.' En plus de donner des cours théoriques, le docteur Burstone a aussi fait l'étude d'un bon nombre de cas cliniques.

Corps dentaire royal canadien

Matériel portatif nouveau à l'essai

Le Corps dentaire royal canadien expérimente en campagne de nouveaux appareils dentaires portatifs que les forces armées américaines utilisent déjà au Vietnam.

L'appareillage comporte deux coffres transportables, l'une contenant la console opératoire, et l'autre le compresseur. La console opératoire peut fonctionner sans apport extérieur d'électricité. L'air est comprimé grâce à un groupe électrogène de 110 volts.

La console opératoire comprend une pompe à salive, un crachoir à vide avec

chasse d'eau, et un aspirateur. Il y a une réserve d'eau et une seringue à air. Le contre-angle à haute vitesse porte sur un coussinet d'air et la pièce à main est une 'Midwest air drive.' Cet appareillage mobile s'ajoute à l'équipement que possède déjà le Corps dentaire et permettra de faire en campagne toutes les opérations imaginables.

Fluoration

Le dentiste et les conséquences de la fluoration

Le Public Health Service des E.-U. a accordé au College of Dentistry de l'Université de l'Illinois une subvention de \$167,204 pour permettre à ses chercheurs d'étudier les conséquences de la fluoration sur la pratique dentaire.

La subvention est accordée pour une étude qui devra porter sur plus de 12 localités, assorties et comparables deux à deux, qui seront choisies en diverses parties des Etats-Unis. Les dentistes seront interrogés et leurs dossiers seront examinés pour déterminer les différences les plus importantes entre les municipalités dont l'eau est fluorée et celles où l'eau manque de fluor.

Une étude préparatoire, effectuée pendant les deux dernières années, a déjà révélé des faits surprenants. Par exemple, le revenu des dentistes exerçant dans des municipalités des E.-U. où l'eau est fluorée tend à être supérieur au revenu des dentistes qui exercent dans des municipalités où l'eau manque de fluor, mais qui sont par ailleurs comparables. Les observations préliminaires suggèrent aussi que les dentistes des municipalités bénéficiant de la fluoration voient un plus grand nombre de patients et que ceux-ci ont besoin de soins moins importants.

Economie

La Société de l'Alberta se joint au US Association of Dental Service Plans

La Société d'assurance dentaire de l'Alberta est devenue membre affilié de la

National Association of Dental Service Plans, de Chicago. La société albertaine est la première à se joindre à la NADSP, qui est un organisme de coordination des sociétés d'assurance dentaire américaines. La NADSP a été créée en vue de permettre aux sociétés d'assurance organisées par les dentistes de devenir compétitives sur le marché de l'assurance dentaire.

Les 11 sociétés américaines d'assurance dentaire qui s'occupent de gérer des régimes d'assurance sont toutes des membres actifs de la NADSP. Peuvent devenir membre:

Les sociétés d'assurance dentaire qui ne gèrent encore aucun régime ou qui en confient l'administration à des sociétés commerciales ou à des organismes semblables (membres associés);

Les associations dentaires membres de l'American Dental Association;

Toute société d'assurance dentaire sans but lucratif, située à l'extérieur des E-U, qui satisfait aux conditions de la NADSP (membres affiliés).

Les sociétés canadiennes d'assurance dentaire, comme la Société de l'Alberta, peuvent devenir membre affilié avec l'approbation officielle de leur association dentaire nationale ou provinciale. Il n'est pas nécessaire que la société fonctionne de fait pour qu'elle devienne membre affilié.

Augmentation de la subvention pour l'assistance dentaire en Alberta

Un nouvel accord sur l'assistance dentaire a été conclu entre l'Alberta Dental Association et le gouvernement provincial. A partir du 1er octobre 1966, et pendant 18 mois, l'association recevra 90 cents par bénéficiaire et par mois. Ensuite, la subvention passera à 95 cents par bénéficiaire et par mois, pour une période d'un an.

Le contrat précédent entre l'association et le gouvernement n'accordait que 53 cents par personne. Grâce à cette augmentation, l'association espère donner aux dentistes traitant les personnes du bien-être social une rémunération égale à 85 pour cent des honoraires de la nouvelle échelle de l'ADA, pendant les premiers 18 mois, et à 90 pour cent des honoraires pendant l'année suivante.

National Convention

Centennial Meeting Plans Unfold

Plans are rapidly maturing for the 1967 centennial meeting of the Canadian and Ontario Dental Associations in Toronto. Business sessions of the CDA Board of Governors will be held May 10-13. The national convention runs from May 14-17. All meetings will be held in the Royal York Hotel.

Highlighting the event will be celebrations marking the 100th anniversary of organized dentistry in Ontario. Several innovations will be introduced for this purpose. One of these will be a change in the format of convention luncheons. Three outstanding Canadians will address delegates on the past, present and future of Canada at the three scheduled luncheons. They are: A. W. Trueman, formerly with the Canada Council and currently dean of the Faculty of Arts at the University of Western Ontario; Don W. Gullett, former CDA secretary; and Arthur Porter, head of the Department of Industrial Engineering at the University of Toronto. Traditional CDA and ODA business and installation proceedings will be compressed into a 15 minute period during the Monday and Wednesday luncheons in order to accommodate these special speakers.

To accent this historic occasion, convention delegates will be able to view an unparalleled collection of vintage and modern dental exhibits tracing the course of Canadian dentistry. Each delegate will also receive a special souvenir brochure outlining 100 years of organized dentistry in Ontario.

Principal essayists and clinical lecturers include Harry Sicher, professor emeritus

Convention Highlights

SUNDAY, MAY 14

Sunday evening entertainment

MONDAY, MAY 15

- 8:30 Dental public health breakfast
- 9:30 Table clinics
- 10:15 Radiology—H. M. Worth, Vancouver
- 12:15 Luncheon—A. W. Trueman, London, Ontario
- 2:15 Grieve Memorial Lecture—D. G. Woodside, Toronto
- 2:30 Projected clinics
- 2:30 Scientific films
- 3:15 Endodontics—J. I. Ingle, Los Angeles
- 9:00 Birthday party

TUESDAY, MAY 16

- 9:30 Prosthodontics—D. D. Krajicek, Wadsworth, Kansas
- 9:30 Group clinics
- 12:15 Luncheon—D. W. Gullett, Toronto
- 2:30 Scientific films
- 2:30 Group clinics
- 3:00 CDA presentation—H. Hillenbrand, Chicago
- 3:00 RCDC Association
- 10:00 Barn raising bee

WEDNESDAY MAY 17

- 9:30 Oral medicine—L. W. Burket, Philadelphia
- 9:30 Group clinics
- 12:15 Luncheon—Arthur Porter, Toronto
- 2:30 Study club seminars
- 3:15 Panel on pain control—B. Geneen, S. P. Starkman, C. D. Torneck, Toronto
- 8:00 Centennial ball, Presidents' reception

at Loyola University School of Dentistry, Chicago; H. M. Worth, Vancouver, internationally noted radiologist; D. D. Krajicek, chief of dental services at the US Veterans Administration Centre, Wadsworth, Kansas; and L. W. Burket, dean, School of Dentistry, University of Pennsylvania. D. G. Woodside, Toronto, will deliver the George Wellington Grieve Memorial Lecture. Also featured is a panel discussion on the control of pain in dentistry.

CDA sections on endodontics, oral surgery, orthodontics, periodontics, prosthodontics and dentistry for children are also holding meetings in Toronto. Similar

gatherings are planned by dental hygienists and dental assistants.

Along with a complete scientific program and commercial exhibits, an outstanding entertainment schedule is being arranged. Social activities will begin on Sunday evening May 14. An 1867-1967 'Birthday Party' is planned for Monday evening. Sidewalk café entertainment is scheduled for Tuesday evening and Wednesday night is set for the banquet honouring the presidents of the two associations. Ladies will also find many interesting activities planned for them.

Essays and Clinics to Cover Radiology, Prosthodontics, TM Joint, Orthodontics and Pain Control

Nine outstanding essayists and clinical lecturers will bring the latest information on a wide range of topics affecting dental practice when they address delegates at the centennial convention of the Canadian and Ontario Dental Associations May 14-17.

H. M. Worth, Vancouver, will discuss the relationship between radiographic technique and radiological interpretation on Monday morning May 15. On Tuesday morning May 16 he will speak on radiology in periodontics. A graduate in medicine and dentistry from Guys Hospital, University of London, Dr. Worth spent much of his professional career as radiologist and lecturer in radiology at Guys Hospital. He also held other important medical appointments in England. More recently, Dr. Worth was a special lecturer in radiology at the Faculty of Dentistry of the University of Toronto.

On Monday morning May 15 D. D. Krajicek of the US Veterans Administration Centre at Wadsworth, Kansas, will be an essayist on the program of the Canadian Academy of Prosthodontics. On Tuesday morning May 16 he describes how to provide a natural appearance for edentulous patients of long standing. The problem of natural appearance for the immediate denture patient will be his topic on Tuesday afternoon. Dr. Krajicek is a graduate of the University of Kansas City

School of Dentistry and a diplomate of the American, Kansas and Missouri Boards of Prosthodontics. He is currently an examiner for the Kansas State Specialty Board of Prosthodontics.

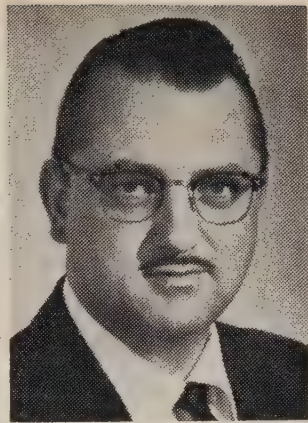
L. W. Burket, dean, School of Dental Medicine, University of Pennsylvania, will speak on Tuesday afternoon May 16 and Wednesday morning May 17. Oral leukoplakia and lichen planus will come in for special attention when Dr. Burket discusses the diagnosis of common oral lesions. He will also show how the tongue serves as a sensitive indicator of general health when he discusses common diseases affecting that organ. Dr. Burket is a dental graduate of the University of Pennsylvania and a medical graduate of Yale University. He has held numerous teaching and consulting appointments in dental pathology and oral medicine at Yale University, the University of Pennsylvania, Walter Reed Hospital, Philadelphia Naval Hospital, Jefferson Medical College in Philadelphia, Pennsylvania Hospital, Philadelphia General Hospital and as consultant to the US Army, Navy, Public Health Service and Veterans Administration.

Harry Sicher, professor emeritus of anatomy and histology at Loyola University School of Dentistry, Chicago, will outline the functional anatomy of the temporomandibular joint to members of the Canadian Academy of Periodontology on Monday afternoon May 15. On Tuesday morning he will present a group clinic on the general convention program. A graduate in medicine from the University of Vienna, Dr. Sicher came to Chicago in 1939 and joined the Loyola dental faculty in 1942. Much of his professional career has been devoted to anatomy and histology as related to dentistry. He is currently director of research training at Loyola University School of Dentistry and visiting lecturer at the dental schools of Northwestern, Nebraska and Puerto Rico Universities.

The future relationship between orthodontics and the general practice of dentistry will come under the scrutiny of D. G. Woodside, Toronto, when he delivers the George Wellington Grieve Memorial Lecture Monday afternoon May 15.



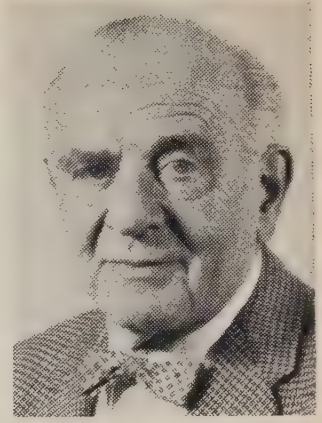
H. M. Worth



D. D. Krajicek



L. W. Burket



Harry Sicher

Dr. Woodside is professor and head of the Department of Orthodontics at the University of Toronto. He also holds teaching and consulting appointments at the Ontario Hospital for Crippled Children, Toronto Hospital for Sick Children, Burlington (Ontario) Orthodontic Research Centre and Charles Tweed Foundation for Orthodontic Research.

On Monday afternoon, also, periodontic and endodontic considerations in a restorative practice will be the subject of an address by J. I. Ingle, Los Angeles. A leading endodontist, Dr. Ingle is also dean of the School of Dentistry at the University of Southern California.

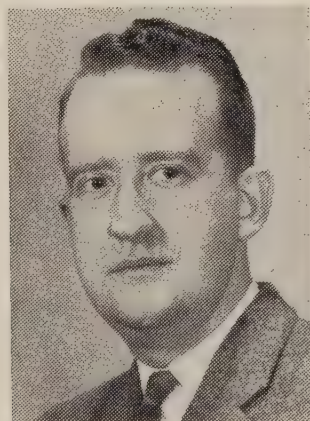
A three man psychiatrist-neurologist-dentist panel will report on the latest developments in pain control on Wednesday afternoon May 17. Panel participants are Benjamin Geneen, S. P. Starkman and C. D. Torneck, all of Toronto. A medical graduate of the University of Edinburgh, Dr. Geneen practises as a consulting psychiatrist. Dr. Starkman

graduated from the University of Toronto and now serves as attending physician at the New Mount Sinai Hospital and as clinical teacher in the Faculty of Medicine, University of Toronto. Dr. Torneck is an associate in dentistry at the University of Toronto and consultant in endodontics to the New Mount Sinai Hospital.

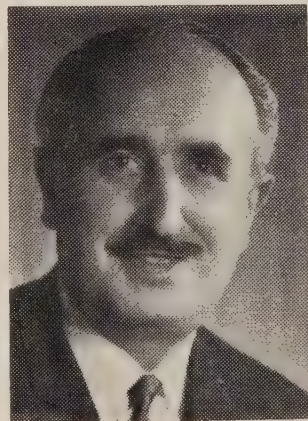
Dr. Nikiforuk to Address Paedodontic Group

Gordon Nikiforuk, formerly at the University of Toronto and now at the School of Dentistry, University of California at Los Angeles, will lecture to the Canadian Academy of Paedodontics at the time of the CDA-ODA centennial convention, May 14-17, 1967.

Dr. Nikiforuk was recently named director of graduate training in oral biology and chairman of the Division of Oral Biology at the Los Angeles School.



D. G. Woodside



Benjamin Geneen



C. D. Torneck



**CENTENNIAL
ART
EXHIBIT**

100 YEARS

CDA-ODA Centennial Art Exhibit

A matchless display of paintings, sketches, drawings, sculpture, ceramic art, handicraft, woodwork, floral arrangements and photographic prints and transparencies will greet delegates and their guests at the CDA-ODA centennial convention. Highlight of the exhibit will be a special 'Centennial Section' devoted exclusively to exhibits pertaining to or suggestive of the theme 'One Hundred Years.'

All dentists as well as members of their families and employees are invited to submit samples of their work for display. Prizes will be awarded for outstanding examples of creative art. For further information, please contact H. G. Poyton, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

The Association

President Coupland Advocates CDA Ottawa Bureau

Although the present spotlight may be on medicare, Ottawa is actively planning additional future health services including dental care, Toronto dentists were told November 25. The remark came in an address delivered by CDA President J. P. Coupland at the annual winter clinic of the Toronto Academy of Dentistry.

The Association's views on current and pending legislation receive careful consideration from government and opposition politicians and from civil servants who advise the federal government, Dr. Coupland told his listeners. But the CDA could become even more effective if it had an Ottawa bureau and if the CDA secretary were given more help and relieved of routine administrative duties.

Dr. Coupland reminded his audience that the Hall Commission had advocated children's dental clinics staffed by auxiliaries and salaried dentists. Ottawa weighed this proposal initially, but the Department of National Health and Welfare has now accepted the CDA's contention that there should be a thorough probe of dental auxiliaries and dental productivity before any further steps are taken. Ottawa has consulted the CDA about launching such an investigation, Dr. Coupland said.

This experience, coupled with the discriminatory provision in the more recent Canada medicare bill (C-227), reinforces the need for a strong national association to safeguard dentists' interests, the CDA president declared. We need knowledgeable officials with established contacts and good sources of information, he said.

Canada and the Provinces

Saskatchewan CCF Wants Tax Supported Dental Care

The Saskatchewan Cooperative Commonwealth Federation, provincial wing of the New Democratic Party, has reiterated a demand for a tax supported dental care program in Canada's central prairie province.

A resolution backing the demand has been incorporated in the party's platform in anticipation of the next provincial election, expected by many this spring. The action was taken at the party's 31st annual convention in Regina November 19.

The policy statement said it might take 10 years to implement the program be-

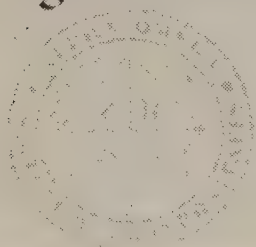


Alpha Omega Fraternity

In recognition and appreciation of outstanding services and contribution to Dentistry the world over, this certificate is presented to

The Canadian Dental Association

In Witness Whereof we have hereby affixed our signatures and the seal of the Fraternity this 14th day of November, 1966.



Herbert Caplan
National President

Albert Werser
National Secretary

The Canadian Dental Association has received this certificate from the Alpha Omega Dental Fraternity in acknowledgement of Canada's contribution to dentistry around the world. The certificate was presented at Dallas, Texas, by Herbert Caplan, Montreal, international president of Alpha Omega Fraternity, to CDA President J. P. Coupland.

cause of Saskatchewan's chronic dentist shortage.

Broaden Hospital Admission Privileges for Manitoba Dentists

Recently amended regulations under Manitoba's Hospital Services Insurance Act widen the range of patients who can be admitted to hospital by a dentist.

Admission was previously restricted to patients requiring the extraction of eight or more permanent teeth, impacted teeth, or any teeth where hospital care is required by reason of a systemic condition.

The new regulations extend eligibility for hospital admission to patients requiring the extraction of six or more deciduous teeth in three or more quadrants, care for postoperative complications of

dental origin, ridge preparation, treatment of benign oral cysts and tumours, extensive periodontic surgery, surgical correction of skeletal defects, treatment for fractures of the maxilla and mandible, and surgical drainage of dental infection.

International Items

Report on Training Auxiliaries in UK

"... Dental auxiliaries can be successfully trained and employed under proper supervision to do, within the limited field prescribed, work of great value, particularly among young children." This is the verdict of the General Dental Council

(Britain's dental licensing authority) in its final report on the experimental training of dental auxiliaries for the country's school dental service.

The study came in response to a 1957 directive from Britain's Privy Council requiring the GDC to conduct the experimental scheme. The Privy Council asked the GDC to determine whether dental auxiliaries could be trained to fill and extract deciduous teeth and subsequently be employed by local authorities under the school dental service.

In its report, the GDC emphasizes that judgement on the economic value of dental auxiliaries must rest with the Privy Council who will determine whether or not the GDC must legally establish 'ancillary dental workers' in accordance with Britain's 1957 Dentists Act.

The report stressed that (1) a dental auxiliary must work under the direction of a licensed dentist who has examined and prescribed the treatment to be given; (2) a dentist must be within call, in person and not by telephone, when the auxiliary gives treatment other than prophylaxis or topical fluoride therapy; and (3) a dentist must examine and discharge a patient when prescribed treatment has been completed.

ADA Adopts Program for Children

The American Dental Association, at its annual session November 14-17, strongly endorsed the dental health program for children which had been drafted by ADA agencies. This action followed a directive from the 1965 ADA annual session which instructed ADA agencies to formulate such a program.

The objective of the ADA program is to make the benefits of organized dental health education, preventive dentistry and dental care available to all American children, especially the needy and underprivileged. The plan will eventually cover all preschool and school children to age 18. Younger age groups will receive priority at the start.

Existing facilities and resources, especially those of private practice, would be fully utilized under the plan. Re-

sponsibility for the dental care of non-indigent children and families would continue to lie with the individual, the family and private and voluntary agencies. Government funds would only be used to support dental services for the indigent and 'dentally indigent.'

Incentives, such as income tax credits, would be used to encourage parents to purchase dental care for their children. Other incentive measures could be introduced to induce prepayment agencies to extend insurance coverage to individuals and families.

Participating communities would be encouraged to fluoridate their water. Incentives, such as federal or state subsidies for the purchase of equipment and the employment of personnel, were suggested for this purpose.

The ADA program calls for the initiation of pilot projects, probably this year, to obtain further necessary information on manpower requirements, administration and the role of prepayment programs.

Occlusodontia Academy Meets in Chicago Feb. 4

Canadian dentists have been invited to attend the 11th meeting of the American Academy of Occlusodontia at the Conrad-Hilton Hotel, Chicago, February 4, 1967.

The theme of the meeting will be a full day seminar on occlusal reconstruction and its relationship to periodontics.

For further information and registration please write to B. S. Margolis, 1737 West Howard Street, Chicago, Illinois 60626, USA.

Postgraduate Courses Offered in New York

The First District Dental Society will offer a variety of short postgraduate refresher courses during the winter months. Further information may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York, New York 10001, USA.

Dental Organizations

NS Assn. Raises Dues

At its September 1966 annual meeting the Nova Scotia Dental Association voted to increase its membership dues by \$20. The new fee will be \$85 effective July 1.

Two reasons were given for the move: (1) a need for more revenue to underwrite the cost of NSDA services, and (2) a desire to provide increased financial aid to the Canadian Dental Association when other provincial corporate members take similar action.

Dr. Biewald Heads Ottawa Society

H. F. Biewald has been elected president of the Ottawa Dental Society for 1966-67. He succeeds H. E. McIntosh.

Lionel Metrick is vice-president and H. C. Bugden is secretary-treasurer.

Canadian Dental Assistants Elect Officers

Joan Green, Montreal, has been elected president of the Canadian Dental Nurses and Assistants Association for 1966-67. She succeeds Penny Waite of Saskatoon.

Elected first vice-president is Mrs. Margaret Biswanger, Vancouver. Mrs. Mollie Fader, Ottawa, is second vice-president. Marion Burton, Saskatoon, is secretary and Mary Csonka, Edmonton, is treasurer of the group.

Canadian Dental Schools

Vancouver Professor Named Assistant Dean at Iowa Faculty

R. M. Jacobs, Vancouver, has been named assistant dean, curriculum co-ordinator and professor of orthodontics at the University of Iowa College of Dentistry.

Dr. Jacobs was associate professor and head of the Department of Orthodontics at the University of British Columbia. Before entering academic ranks he was

in private practice in New York and also served with the US Public Health Service in Nevada.

Toronto Faculty Enrols 657

Six hundred and fifty-seven undergraduate dental students, dental hygiene students, and students in postgraduate and graduate courses are currently registered in the Faculty of Dentistry, University of Toronto. This is an increase of 20 over the previous year's enrolment.

The breakdown of registration is as follows: first dental year 125, second dental year 119, third dental year 129, fourth dental year 122, special students 5, making a total of 500 dental undergraduates. There are 49 and 46 students respectively in first year and second year dental hygiene classes. Postgraduate and graduate enrolments are: diploma courses 35, bachelor of science in dentistry 6, master of science in dentistry 16, and occasional students 3.

New Staff Appointments at U of T

Dean R. G. Ellis of the Faculty of Dentistry, University of Toronto, has announced the following new full-time appointments:

A. T. Storey has joined the staff as associate professor. Dr. Storey was born in Sarnia and, after graduating from the University of Toronto in 1953, practised in Sarnia until 1957. He then attended the University of Michigan where he earned an MS (1960) in orthodontics and a PhD (1964) in physiology. At the University of Michigan Dr. Storey was assistant professor of physiology in the medical school and assistant professor of orthodontics in the School of Dentistry.

W. C. Sturtridge has joined the university staff as a lecturer. A Toronto graduate in dentistry (1954) and medicine (1965), Dr. Sturtridge holds a cross appointment in the Faculties of Medicine and Dentistry, with particular responsibility in pharmacology.

G. A. Zarb has rejoined the faculty staff with the rank of assistant professor.

Following graduation from the University of Malta (1960), he attended the University of Michigan where he earned an MS degree. Dr. Zarb then came to Toronto as a part-time staff member. During session 1965-66 he took further postgraduate work at Ohio State University under a fellowship grant from the Canadian Fund for Dental Education.

G. S. Beagrie, professor of restorative dentistry at the University of Edinburgh, has joined the Toronto faculty as visiting professor for the period September 1, 1966 to February 28, 1967. He will assist C. H. M. Williams in the Department of Periodontology.

Linda A. Farley, who graduated in dental hygiene in 1965, has joined the staff of the Division of Dental Hygiene on a full-time basis.

Dental School at McMaster or Queens U under Study

Queens University, Kingston, and McMaster University, Hamilton, are being considered as prospective sites for Ontario's third dental school. This was revealed by Health Minister Matthew Dymond during sod turning ceremonies for the University of Western Ontario's \$8,430,000 Dental Sciences Building September 28. But Dr. Dymond declined to say where or when the next dental school will be established.

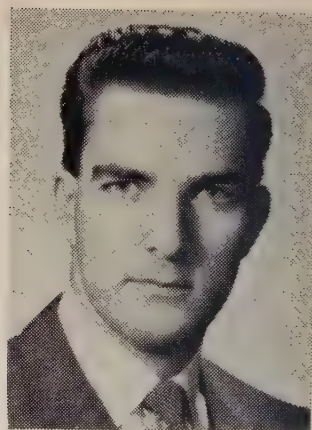
Western's new building, part of the university's health sciences complex, will house the first new dental school in Ontario since the one established in Toronto in 1875. The building is to be completed in the spring of 1968.

Dr. Bentley to McGill Faculty

K. C. Bentley has accepted a full-time appointment in the Department of Oral Surgery at Montreal's McGill University.

Dr. Bentley is a native Montrealer who graduated from McGill University in dentistry in 1958 and in medicine in 1962. Following internship and residency in general surgery at the Montreal General

K. C. Bentley



Hospital, he was awarded a Canadian Dental Association fellowship in 1964 to pursue oral surgery training at Bellevue Hospital in New York City.

Royal Canadian Dental Corps

Brig. Baird Retires; Col. Kearney to Head Dental Corps

Col. B. P. Kearney, 51, of Ottawa and Galt, Ontario, was promoted to brigadier December 9 and appointed Director General of Dental Services for the Canadian Forces with headquarters in Ottawa.

Now Deputy Director General of Dental Services there, he succeeds Brig. K. M. Baird, 54, who will retire this month.

A graduate in dentistry from the University of Toronto in 1936, Brig. Kearney joined the dental corps in 1940. He served as dental officer with several Canadian army units in Britain and northwest Europe during the Second World War.

After the war he held dental appointments at army headquarters, in Whitehorse during the early 1950's and at the Royal Canadian Dental Corps School, then in Ottawa.

Brig. Kearney commanded No. 25 Dental Company in Korea in 1953-54 and then became senior specialist of No. 13 Dental Company at Trenton, Ontario. He took command of the Dental Corp School at Camp Borden, Ontario, in 1957 and in 1961 was appointed command dental officer of Western Command in Edmonton

and in addition was commanding officer of No. 11 Dental Company there.

He became senior dental consultant in Ottawa in July 1965, and later that year was appointed Deputy Director General.

Promotions

D. D. Robertson: warrant officer 1 to captain. Capt. Robertson will be laboratory officer at the RCDC School, Canadian Forces Base Borden, Ontario.

Economics

Dentists Were Fourth-Highest Income Earners in 1964

A National Revenue Department report on 1964 personal income tax returns shows that physicians and surgeons still top the occupational groups with an average income of \$21,474, up by \$2,041 from the previous year.

Next were lawyers averaging \$17,282 and third were engineers and architects at an average \$16,801.

Dentists, \$14,909, and accountants, \$13,021, were fourth and fifth highest income earners that year.

Three Provinces Report New Developments in Group Dental Care

From British Columbia, where a dental care plan for sheetmetal workers began in July of last year, comes word that the longshoremen's and carpenters' unions have voted funds and are negotiating to purchase a similar plan.

In New Brunswick a group dental care plan has been drafted by the Maritime Hospital Service Association. MHSA officials, having met with representatives of the dental profession, were reportedly trying to start their plan by November 1, 1966. New Brunswick does not have a dental service corporation.

In Nova Scotia, the provincial government is interested in a dental welfare

plan for children and the profession has submitted a draft plan to the government.

Saskatchewan's Health Minister and Dental College Study Need and Demand for Dental Services

Saskatchewan Health Minister David Steuart has recommended that consideration be given to a plan for training dental auxiliaries who would work in dentists' offices to increase the volume of dental care services in his province. The minister made the proposal when he and officials of his department met with the Council of the College of Dental Surgeons of Saskatchewan October 3.

Under the plan, dentists would employ and supervise the auxiliaries and would be legally responsible for their services.

College spokesmen countered by expressing concern over the discrepancy between need and demand for dental services which emerged from a recent survey conducted among Saskatchewan dentists. The minister and the college agreed to set up a joint committee to study this problem. Named to the committee as representatives of the college were Regina dentists T. F. Wihak, C. N. Bolen and R. O. Brett. The Department of Health will also name three members of the committee.

Alberta Increases Dental Welfare Grant

The Alberta Dental Association has concluded a new dental welfare agreement with the provincial government. Effective October 1, 1966, the association will receive 90 cents per beneficiary per month for 18 months. Thereafter, the grant will be raised to 95 cents per beneficiary per month during a further one year period.

Under the former contract between the dental association and the government, the per capita grant was only 53 cents. With the increased grant the association hopes to pay dentists treating welfare patients 85 per cent of the new ADA fee schedule for the first 18 months and 90

per cent of the fee schedule for the following 12 months.

Alberta Sets July '67 Target Date for Prepayment Plan

The Alberta Dental Service Corporation expects to be able to offer a dental plan to groups by July 1967. The service corporation was activated in July 1966 and the Alberta Dental Association has voted \$25,000 toward the cost of making a program available to the public.

RCDS Makes Dental Welfare Proposal to Metro Toronto

The Royal College of Dental Surgeons of Ontario has offered to Metropolitan Toronto dental care for welfare recipients and their dependants at a cost to the city of 90 cents per person per month. The offer includes oral examinations, extractions, fillings, radiographs and topical fluoride treatments but does not include orthodontics, crown and bridge prosthodontics or dentures. It would include dentures after provincial legislation allowing such treatment is brought down under the Canada Assistance Plan.

At its meeting on October 20, the Metro welfare committee recommended that dental care go beyond the proposal offered by the RCDS. One reeve brought in a motion to provide free dental care to low wage earners also. A rival resolution suggesting that free dental care be provided only to welfare recipients died without a vote. At a subsequent meeting, the Metro executive committee voted to defer action on the RCDS proposal.

At present, welfare recipients in the city can get limited dental care only from out-patient clinics attached to hospitals and practising dentists.

Dental Care Linked to Family Income

"Going to the dentist appears to be more closely related to family income than is any other major type of health care," ac-

cording to a recent report in the Washington State Dental Association *Newsletter*. The report cites results from a national survey conducted by the Health Information Foundation and the National Opinion Research Center at the University of Chicago.

The percentage of persons receiving dental care in 1963 rose consistently with increasing family income from a low of 16 per cent for those with incomes of less than \$2,000 to 60 per cent for those having family incomes of \$12,500 or more.

The survey also showed that persons covered by health insurance, even though dental care is not included, are more inclined to see a dentist than are uninsured persons in the same income level. Thus, 39 per cent of those in the \$3,500 to \$7,499 family income level with hospital insurance saw a dentist compared to 25 per cent in the same group without hospital insurance.

Foreign-Trained Physicians Boost Canadian Medical Manpower

A recent report on medical manpower in the *Canadian Medical Association Journal* shows an improvement in most areas between 1960 and 1965 "largely due to a massive inflow of foreign-trained doctors rather than to the output of our own Canadian medical schools."

The report reveals that of all physicians licensed to practise in 1964, foreign-trained physicians comprised three out of four new licensees in Newfoundland and Saskatchewan, two out of three in Manitoba, three out of five in Alberta and almost one out of two in British Columbia and Nova Scotia.

Fluoridation

NS Govt. to Aid with Fluoridation Cost

Four additional Nova Scotia communities are reportedly acquiring or installing equipment to fluoridate their water supplies. Nearly 200,000 Nova Scotians — in Halifax, Dartmouth, Kentville, Antigo-

nish, Windsor and Wolfville — already receive fluoridated water.

An offer by the provincial government to pay for half the installation cost — up to a maximum of \$5,000 — is expected to encourage other communities to take similar action.

Edmonton Accepts, Calgary Rejects, Fluoridation

Edmonton and seven other Alberta municipalities have joined the ranks of Canadian communities which fluoridate their water. This resulted from majority votes during October fluoridation plebiscites, first to be held in Alberta since the provincial Public Health Act was amended by the legislature last April. At that time the provincial government lowered the requirement for approval of fluoridation from two-thirds to a simple majority. Another amendment permits free distribution of fluoride tablets by any health unit or municipal health department to any resident who requests them and whose physician or dentist prescribes them.

Voting for fluoridation were the city of Drumheller and the towns of Cardston, Drayton Valley, Elk Point, Hanna, St. Paul and Vegreville. The measure was defeated in Calgary, Camrose, Claresholm, High Prairie, Ponoka and Tofield.

The new fluoridation projects will bring the total number benefitting from this public health measure to well over five million Canadians living in nearly 300 communities. Major centres now using controlled fluoridation include Toronto, Winnipeg, Ottawa, Windsor, Laval, Halifax and Saskatoon.

Edmonton, capital of Alberta, is the fourth largest Canadian centre to adopt fluoridation, ranking after Toronto, Winnipeg and Ottawa. The city is the core of a metropolitan area of 400,000 people.

To Study Impact of Fluoridation on Dental Practice

The impact of water fluoridation on dental practice will come under the scrutiny

of dental researchers as a result of a \$167,204 US Public Health Service grant awarded to the University of Illinois College of Dentistry.

Under terms of the grant, more than half a dozen pairs of matched, comparable communities will be selected in various parts of the United States for the study. Dentists will be interviewed and their office records reviewed to determine significant differences between fluoridated and fluoride-deficient communities.

A preliminary feasibility study conducted during the past two years has already turned up some surprising facts. For instance, dentists who practise in fluoridated US communities tend to have higher incomes than dentists in fluoride-deficient, but otherwise comparable communities. The preliminary data also suggest that a larger number of patients, each needing less care, are seen by dentists in fluoridated communities.

Public Health

Victoria Children Exhibit Better Dental Health

Caries attack rates dropped markedly and children with 'no caries defects' increased significantly in Greater Victoria during the past six years, according to the BC health department's August 1966 report on dental health indices for the island capital.

Results in area municipalities varied, however. Oak Bay children displayed superior dental health, recording the highest levels of 'no dental defects' and 'no caries defects.' Oak Bay children also had the lowest caries attack rates and the lowest levels of periodontic disease and severe malocclusion. Results for Victoria City children were generally at the other end of the scale.

Pilot Community Dental Care Project Termed Successful in Rural Manitoba

Continuing population growth, coupled with increasing awareness and demands for dental care as a health service, have

strained dental manpower resources to the limit in many rural areas of Manitoba.

To alleviate this situation, the Manitoba health department's dental section joined with McGregor area local authorities in a six week pilot project last summer which could eventually revolutionize the provision of dental services in rural parts of the province.

Local officials provided accommodation for a clinic in a two storey vacant home on the grounds of the McGregor General Hospital. The main floor was converted into a four chair dental clinic and the second floor provided a residence for male professional staff. Modern dental equipment was provided on loan from the Faculty of Dentistry, University of Manitoba.

The project utilized fourth year dental students, a student dental hygienist, and two novice dental assistants under the direction of a University of Manitoba dental instructor.

To bolster existing clinical staff, local volunteers attended to reception responsibilities and acted as supplementary dental assistants.

An intensive educational program, directed by the regional dental consultant, preceded the opening of the clinic. Public response far exceeded expectations with the result that at the end of six weeks a waiting list of some 230 persons remained on the appointment books. Coincidentally, two dental practitioners established practices in Portage la Prairie during this period, and the clinic personnel were able to refer the surplus patients to Portage for treatment.

The clinic provided comprehensive dental care, including radiographic examination, prophylaxis and topical application of fluoride solutions. All bona fide residents of the community were eligible to attend the clinic. Children and adults were treated on a fee for service basis.

Dr. Russell Appointed Nfld. Dental Director

J. E. Russell, recently appointed as provincial director of dental services, has resumed his duties with the Newfoundland

health department following completion of a postgraduate dental public health course at the University of Toronto.

Six recent graduates who benefitted from bursary assistance during their undergraduate training are currently employed by the provincial health department on a part-time basis to provide dental care for children. Newfoundland offers free dental care to young children throughout the province.

Research

Toronto Faculty Gets World's Most Powerful Computer for Dental Research

Canada will become a world leader in dental research as a result of a new electronic computer recently installed in the Division of Dental Research at the University of Toronto's Faculty of Dentistry. Cryptically designated PDP-8, this new \$83,000 electronic device will be linked via telephone lines to the IBM 7094 computer at the university's Institute of Computer Science. PDP-8 will aid in dental research at the Toronto faculty. It will also be used to process data for Canada's national dental health index and for a dental epidemiology project for the World Health Organization. PDP-8 is the world's most powerful electronic installation solely devoted to dental research.

Deaths

Armstrong, Herbert Henwood. 79. Port Perry, Ontario. Royal College of Dental Surgeons of Ontario, 1913. 17-11-66. Survived by Constance (wife).

Charles, Burwell James. 72. Calgary, Alberta. Royal College of Dental Surgeons of Ontario, 1920. 25-10-66. Survived by Mary Lou (daughter).

Corben, Stanley Herbert. 74. Calgary, Alberta. Royal College of Dental Surgeons of Ontario, 1923. 24-11-66. Survived by Etta M. (wife).

Dunlop, Robert Albert. 89. Toronto. Royal College of Dental Surgeons of Ontario, 1904. 6-11-66. Survived by Mrs. Bella Sharpen (sister).

Farley, Charles Henry. 51. North Battleford, Saskatchewan. University of Toronto, 1950. 16-11-66.

Hardman, Edmund Lorne. 66. Wiarton, Ontario. Royal College of Dental Surgeons of Ontario, 1930. 10-11-66.

Mills, George Keith. 86. Tilbury, Ontario. Royal College of Dental Surgeons of Ontario, 1902. 7-11-66.

Nurse, William Osborne. 57. Toronto. University of Toronto, 1933. 1-12-66. Survived by Irene (wife).

Orobko, William. 49. Edmonton. University of Alberta, 1939. 27-11-66. Survived by Helen (wife); Mary-Lynne (daughter); William Peter (son); Mrs. William Orobko (mother); and John (brother).

Pye, Albert Edward. 51. Montreal. McGill University, 1942. 13-8-66.

Regnier, Joseph Theobald. 70. Rockland, Ontario. Royal College of Dental Surgeons of Ontario, 1918. 10-11-66. Survived by Laurence Landriau (wife).

Richardson, Sedgewick Ross. 62. Victoria, British Columbia. North Pacific College, University of Oregon, 1927. 2-11-66. Survived by Gladys (wife); Dr. Harvey Richardson and Dr. Alan Richardson (sons) and Mrs. Eileen Hempson (daughter).

Sidenberg, Bennett Ralph. 66. Detroit, Michigan. Royal College of Dental Surgeons of Ontario, 1924. 9-10-66. Survived by Sonia (wife) and Dr. Irwin and Dr. Robert (brothers).

Toren, Reuben L. 74. Saskatoon, Saskatchewan. University of Minnesota, 1914. 26-11-66.

Awards and Honours

W. Ross Stuart, Edmonton, has been appointed councillor-at-large to the Pacific Dental Conference. The conference, a grouping of west coast state dental societies together with dental groups in Alberta and British Columbia, sponsors periodic dental conventions. Dr. Stuart will represent Edmonton and northern Alberta on the Pacific Dental Conference.

D. B. McAdam, Toronto, has been appointed chairman of the editorial board of *Oral Health* magazine. He succeeds **J. H. Johnson** who held this appointment for 13 years. The *Journal of the Canadian Dental Association* extends congratulations and best wishes to Dr. McAdam.

in memoriam

Bennett Ralph Sidenberg

Dr. B. R. Sidenberg of Detroit, Michigan, died on October 9, 1966, at the age of 66. He was born in Toronto in 1900.

Following graduation from the Royal College of Dental Surgeons of Ontario in 1924, Dr. Sidenberg moved to Detroit where he practised dentistry until the time of his death.

Dr. Sidenberg was active in the Alpha Omega Fraternity and served as its international president in 1941. It was during his tenure in office that a mobile dental clinic was presented by Alpha Omega Fraternity to the Canadian Dental Corps. He also served as chairman of the Educational Commission of the Detroit District Dental Society for many years and was a life member of the Alpha Omega Fraternity, the American Dental Association and the Michigan State and Detroit and District Dental Societies.

Surviving Dr. Sidenberg are his wife, Sonia, and two brothers, Dr. Irwin of Niagara Falls, New York, and Dr. Robert of Toronto.

Advances in Fluorine Research and Dental Caries Prevention

P. M. C. James, K. G. Konig and H. R. Held, ed. Vol. 4. *Proceedings of the 12th Congress of the European Organization for Research on Fluorine and Dental Caries Prevention (ORCA), Utrecht, The Netherlands, June 9-11, 1965. Toronto, Pergamon Press, 1966. 246 p. Illus. \$18.50*

This volume presents under one cover the current thinking of the members of ORCA and some guest lecturers on the problems encountered in the conduct of the clinical testing of agents for the prevention of dental caries. The coverage of the subject is very complete and practical; hence, the book should be very important to scientists who undertake such trials. In addition, for those interested in preventive dentistry, perusal of the text will give considerable insight into the level of sophistication that has been attained in this work. The book should be read by teachers and public health dentists whose responsibility it is to interpret to the profession the value of new control measures.

Accompanying chapters dealing with aspects of the clinical trial is a stimulating assortment of articles covering related current topics such as the molecular biological aspects of calcification, in vitro testing of acid phosphate - fluoride, electron microscopy of the developing enamel surfaces, analysis of enamel fluid and many others.

R. M. Grainger

The Scientific Bases in Dentistry

Max Shapiro, ed. Philadelphia and London, W. B. Saunders, 1966. (Available from McAinsh & Co. Limited, Toronto) 334 p. Illus. \$10.80

The grammatically awkward title of this 'pioneering venture' in dental bibliography neatly epitomizes the dilemma of the several authors of this book. The dental educators' constant problem of integrating the basic and clinical sciences serves as the central theme for this multi-subject book. Despite valiant attempts by the authors to amalgamate the basic and clinical sciences, this oil and water mixture remains largely insoluble. Nevertheless, much as the rela-

tive values of the 'usefulness' of the pure versus applied sciences are hotly debated in the larger realm of research, so is the justification for teaching the basic sciences to dental students vindicated in this book.

In nine chapters, of variable length, the sciences of anatomy (gross, microscopic and dental), physiology, biochemistry, microbiology, pathology, pharmacology and dental materials are separately authored by 10 leading dental scientists, of whom only two are drawn from outside the United States. Each relates his special subject to the practice of dentistry in his own way, resulting in an uneven variety of styles and levels of treatment. The subject matter thus ranges from the very elementary to the rather complex in different chapters, thereby both irritating the experienced clinician in some parts, and undoubtedly perplexing the uninitiated preclinical science student in others. Nonetheless, the different authors provide some revealing insights into the philosophy of scientific method that ought to be interesting to both classes of readers. Ostensibly, the text has been written for preclinical dental students, but many of the observations made pertaining to clinical application of the sciences will be largely meaningless to this group of readers. The dental basic science teacher with some clinical experience is more likely to gain insight into the 'usefulness' of his subject by reading this book than are his students. Even the practitioner of some years' standing might find renewed interest in subjects studied so arduously years before. The brief historical notes at the beginning of each chapter provide an interesting perspective that is too seldom dealt with in the texts or courses on these subjects. The treatment of dental evolution, although brief, is a welcome introduction to a basic science too long neglected in dental curricula.

A certain amount of repetition of clinical illustration occurs, although the examples cited are dealt with in a slightly different context by each of the authors. The quality of the photographic illustrations could in many instances be improved and the labeling in Figure 2-30 of the external auditory meatus as a "curve" is puzzling and misleading. While excellent recent references are provided at the end of most chapters, the lack of an index seriously detracts from the usefulness of this text.

The idea behind this book is an excellent one, and its production is symptomatic of a

need to be filled. In our pragmatic profession, as Bibby points out in his delightful chapter, "the value of any knowledge is not directly related to its particular usefulness. Its indirect effects . . . can be more important than its obvious practical applications." This book is, with variable effectiveness, dedicated to convincing its readers of this principle.

G. H. Sperber

Removable Orthodontic Appliances

A. M. Schwarz and Max Gratzinger. Philadelphia and London, W. B. Saunders Company, 1966. (Available from McAinsh and Co. Limited, Toronto) 355 p. Illus. \$19.45

This book examines a broad spectrum of removable orthodontic appliances, and their "proper use, based on proper diagnosis." The volume is divided into two sections which deal with (1) diagnosis and (2) treatment.

The diagnostic section includes chapters on taking the history, clinical examination of patients, and the analysis of study casts. Numerous illustrations, many borrowed from other sources, add to clarity of the text. However, quality of some illustrations, especially those appearing in the article on 'roentgenostatics' is poor.

Section two introduces step by step procedures involved in the construction, care and activation of removable appliances. Three chapters are devoted to theoretical, technical and clinical aspects of "functional jaw orthopaedics." The fabrication and adjustment of activator-type appliances are described in detail and elucidated by excellent drawings and photographs of actual cases. Other chapters deal with the principles of tooth movement, the question of tooth extraction in orthodontic treatment, the problem of orthodontic relapse and the methods of compensation for tooth loss by means of orthodontic space closure. Finally, the employment of removable orthodontic appliances in the management of chronic periodontic disease is discussed in the appendix.

The major weakness of the book seems to be a tendency toward gross over-simplification of complex biological concepts and treatment of many controversial issues as if they were irrefutably solved. For ex-

ample, one clinical case is appraised in the following manner: "We would like to think that through orthodontic treatment the maternal hereditary tendency to the anomaly was suppressed, and the paternal hereditary tendency to the normal occlusion was stimulated." This must be viewed as wishful thinking at best.

In another chapter, the authors pronounce that masticatory muscles as well as skeletal growth are stimulated by activator-type appliances which, presumably, "induce transformation of the tissues by simulating cellular elements with every closure of the jaws." The authors also contend that by means of 'roentgenostatics' they can assess the "ought-to-be" facial profile and "distinguish clearly between the physiologic and morphologic variation of the face." To my knowledge, none of these assertions can be corroborated by the currently available scientific evidence.

Another shortcoming of the book is its failure to point to the contra-indications and many disadvantages of removable appliances. This may tend to mislead the reader into believing that removable appliances "make eminently good sense" in all cases of malocclusion. In summary, however, despite the above limitations, I consider this concise and well written text a useful contribution to the dental literature.

R. M. Jacobs

Endodontics: The Diagnosis and Treatment of Pulp Disease and its Sequelae

J. M. Mumford. Toronto, Pergamon Press, 1966. 160 p. Illus. \$5.00

This informative small English textbook of 150 pages (11 chapters) is a concise gathering of modern concepts and methods in the practice of endodontics. The author approaches the subject from a clinical rather than a pathological point of view and summarizes all phases of endodontic treatment. Perhaps at times he discourses excessively on obsolete methods, and his terminology differs somewhat from that used on this continent. For these reasons, and because many of his references are American in origin, I feel that the book will be more useful to the student and practitioner in the author's own country.

D. C. Eaton

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	<i>Montant investi</i>	<i>Valeur au marché</i>	<i>Valeur unitaire</i>	
Government Bond Fund	\$ 648,863.23	\$ 604,216.88	\$13.438	Fonds d'obligations gouvernementales
Corporate Bond Fund	1,103,325.18	1,034,673.58	14.507	Fonds d'obligations corporatives
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Specialists and specialization

A directive from the last meeting of the Board of Governors has focused renewed attention on the thorny issue of specialization. The Board has placed an embargo on the recognition of further specialties and has instructed the Specialists and Specialization Committee to make a thorough review of the situation. The committee is expected to submit a report when the Board reconvenes in Toronto next May.

In essence, the CDA is searching for new and better ways of identifying needed dental specialties. The Association also hopes to resolve disparate views about specialty practice limitation. Readers are invited to participate by expressing their opinions and thereby moulding the Association's future policy.

At the outset, it is necessary to distinguish between CDA sections and specialties. A section is a grouping of dentists with particular interest in a designated facet of dentistry. The members desire to elevate their competence in a restricted field. The CDA has always favoured such groups because of their beneficial influence on the profession as a whole. The designation of a specialty introduces an entirely new dimension by creating a distinction between ordinary members of the Association and those who are recognized as possessing superior qualifications. Such schism distresses those who regard dentistry as a specialty of medicine. Dentistry's field, they point out, is narrower than that of some medical specialties; why, therefore, splinter the profession into still smaller fragments?

The possession of extensive clinical experience and exceptional skill is sometimes advanced to validate a claim for a new specialty. But these qualities are also encountered among general practitioners. As a means of identifying a true specialty, they are unreliable. A more objective yardstick would be the requirement for formal education beyond the limits of the undergraduate curriculum. The application of this standard permits some useful deductions.

For example, orthodontics, as now practised, merits the status of a specialty because of the methodology and conceptual approach inherent to this discipline. The general practitioner is only superficially conversant with these attributes since he merely brushes the subject during the undergraduate curriculum. But given the anticipated evolution of dental practice, there will come a time when undergraduates may receive the kind of instruction now reserved for graduate

orthodontic students. When this happens, orthodontics may well lose the status it now enjoys.

Oral surgery, likewise, deserves recognition as a specialty since its devotees engage in major surgery and hospital practice—fields that are substantially removed from the area of general dental practice.

Prosthodontics, on the other hand, falls into a different mould. The prosthodontist and general practitioner are guided by similar principles and employ identical techniques. A distinction, if any, resides in the prosthodontist's concern for detail and perfection—qualities that deserve to be more widely shared in the profession.

Endodontics poses no insuperable problem unless the general practitioner abandons principle and judgement in favour of some magic ritual technique.

Periodontics presents the occasional difficulty. But periodontic disease is so widespread that this discipline, too, is an integral part of daily general practice. Consequently, the public and the profession would be better served by modification of the undergraduate curriculum than by the recognition of a periodontic specialty.

Superficially, the paedodontist shares the same techniques as his colleague in general practice. This apparent similarity may have retarded the evolution of a paedodontic specialty. Closer examination, however, reveals a commitment to preventive dentistry and a concern with physical and psychological development that can only be acquired through formal postgraduate education.

Public health dentistry reflects the needs of people as a social unit. This discipline, too, demands an appreciation that cannot be acquired without supplementary postgraduate instruction. Public health dentistry, accordingly, merits recognition as a specialty.

Oral pathology, likewise, would have achieved specialty status long ago if its adherents had not been content with more prestigious academic titles.

Designating as specialists only those dentists who have received significant postgraduate education and whose work differs substantially from that of the general practitioner has a further advantage: it eliminates the question of specialty practice limitation. The controversial requirement that a specialist confine his practice to his chosen specialty results from the multiplication of specialties, many of which differ but little from general dental practice. This trend, reflecting a well intentioned desire to acknowledge exceptional talent, unfortunately warps the entire issue. An effective solution to this problem demands a re-evaluation of the general practitioner. The quest for prestige is no justification for the creation of a specialty. There is no room within the profession for those who do not value the simple appellation 'dentist.'

The future role of dental auxiliaries

For the past six years, the American Dental Association has had a policy encouraging accredited dental schools and the federal dental services “. . . to undertake carefully designed programs of experimentation and research in the training of dental hygienists and dental assistants.” Four such programs have been instituted, all designed to increase the dentist’s productivity when working with various combinations of assistants and operatory arrangements. Also, the dental assistant has been assigned certain treatment procedures heretofore reserved for the dentist, such as the insertion and finishing of amalgam and silicate fillings under the supervision of the dentist, in cavities prepared by him.

Although the data are limited, they are consistent. They indicate that the assistant can be trained to insert filling materials and perform other duties as well as the dentist does and that the dentist’s output can thus be increased by more than 100 per cent.

These studies are well timed, for the dental profession soon will be faced with the unhappy combination of a rising demand for dental care and a decreasing ratio of dentists to population. Although additional experimentation is necessary, it also is necessary for the profession to express its opinion now on the type of training that dental auxiliaries should get. It is the dentist who is responsible for the welfare of the patient, and it is the dentist who must determine which duties are to be delegated to the auxiliary members of his team. The parallel in medicine is the individual physician’s determination of which functions nurses and medical and x-ray technicians are to perform. Medical practitioners vary in the duties they delegate, and this system works well. The individual dental practitioner also must have the right to determine those duties he is to delegate.

Because the delegating authority rests with the practitioner, educators alone should not decide the scope of dental auxiliary training. Individual practitioners must make their needs known so that the educators can tailor their training programs to produce the type of auxiliary the dentist wants. In addition, practising dentists should be allowed to teach their auxiliaries whatever duties allowable by law they wish them to perform.

It rests with the practising dentist to establish the future role of the dental auxiliary. Study and action clearly are needed, especially at the local and state levels. Practitioners should study the problem now, and make their views known individually and through their component and constituent dental societies. The state dental examining boards also must assume a position of responsible leadership and take whatever actions are necessary. Together, individual dentists, component and constituent dental societies, and state dental examining boards should plan a course of action and follow through. And it would be well to make the new policies sufficiently flexible to meet whatever manpower problems the dental profession may face in the future.

L. C. Hendershot

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

■

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

Students' Subscriptions to the Journal

To the Editor:

I would like to thank you for sending copies of the *Journal of the Canadian Dental Association* to the members of our graduating class. I understand this practice has been going on for several years and I assure you, it is indeed appreciated.

For the last year or so I have felt that the reading of our professional journals is one very good way in which dental students can widen their viewpoints and learn more about newer trends in dentistry. I also feel that being exposed to these publications makes undergraduates feel more a part of the profession and enables them to assume a more active role in their dental societies and associations soon after graduation.

I would like to suggest the idea of enabling second and third year students to obtain subscriptions for your *Journal* at a reduced student rate. I can assure you that a subscription rate which is not expensive for a student but that still allows you to pay for the postage and handling would be well received by the students. I hope that you will give this thought some consideration.

R. J. Sexton,
*President, University of Toronto
Dental Students' Society*

Mr. Sexton's proposal is commendable. The possibility of offering student membership in the CDA, including a subscription to the Journal, is under consideration. (Ed.)

Children's Dental Plan

To the Editor:

It has been brought to my attention that a comment made in my recent letter to the editor was inaccurate and unfair to the Gallup Poll (*J. Canad. Dent. Ass.* 32:585, 1966). In my letter I said that one of the questions in the Public Opinion Survey for the Ontario Dental Association was not properly qualified. My source was the *Journal of the Ontario Dental Association* 42:9, 1966, which stated that "The interviewers had prefaced this question with explanatory cards citing the five years training of a dentist and his services, and the two year training and services proposed for dental auxiliaries." However, after checking the original question I find that, contrary to my expressed opinion, the poll question was explained in great detail. I was careless in not referring to the original question at the time the letter to the editor was written. I hope that the Gallup Poll will accept my apology.

A. M. Hunt, DDS,
*Professor of Dental Public Health,
Faculty of Dentistry, University of Toronto*

Rat connective tissue response to hollow polyethylene tube implants

J. M. Phillips, DDS, BScD, Oshawa, Ontario

The 'hollow tube effect' — an inflammatory reaction studied experimentally by implantation of hollow tubes in animal subcutaneous tissue — has long been regarded as a reason for the failure of inadequately filled root canals. In this study, hollow polyethylene tubes were implanted for 60 days in rat subcutaneous tissue. The implants failed to produce tissue irritation. Instead, all tubes became encapsulated by fibrous connective tissue and the open ends of shorter tubes having larger inside diameters became invaginated by connective tissue.

■

Les échecs que l'on remarque dans la région péri-apicale des dents dont les canaux n'ont été scellés que d'une façon incomplète, ont depuis longtemps été attribués au soi-disant "effet de tube vide." Il s'agit d'une réaction inflammatoire produite expérimentalement par l'implantation de tubes vides dans les tissus sous-cutanés d'animaux de laboratoire. L'auteur du présent travail a employé des tubes vides de poly-éthylène qu'il a placé dans les tissus sous-cutanés chez des rats pour une période de 60 jours. Aucun des implants n'a produit d'irritation au niveau

des tissus. Tous les tubes ont été encapsulés par un tissu conjonctif fibreux. Il y a même eu invagination du tissu conjonctif dans la lumière des tubes les plus courts et à grand diamètre.

The factors influencing success following endodontic therapy are not as yet fully understood. This paper reports the results of pilot study of the 'hollow tube effect' described in an earlier study by Rickert and Dixon.¹ A technique using controls and histological sections was used.

Rickert and Dixon implanted hollow tubes of platinum and steel hypodermic needles 1 cm. or more in length in the skin fascia of rabbits. They reported: "Our macroscopic studies of these skin implants were immensely interesting in that a large halo of irritation was in evidence about the ends of these metal tubes but in the median portion which was not exposed to the hollow region, the tubes were tolerated with no irritation." These investigators concluded that there was a diffusion of stagnant circulatory elements out of the ends of the tubes and that this diffusion was not well tolerated

by the adjacent vital tissues. Others²⁻⁶ have agreed with this 'hollow tube effect' hypothesis and have accepted that the accumulation of tissue fluids in a root canal and the subsequent stasis may result in periapical irritation.

The lack of histological sections in Rickert and Dixon's experiment indicated that this important and often quoted study should be repeated. Clinical observations of full-mouth radiographic surveys show many teeth with grossly underfilled root canals, but no evidence of periapical pathological change. Skillen⁷ performed a microscopic examination of 250 pulpless, radiographically negative teeth. These were root canal treated teeth, of which 117 were properly filled. Of the remainder with poor root canal fillings, only six showed any evidence of infection. Many of these were grossly underfilled either in a lateral or an apical direction.

Strindberg⁸ in his detailed study of root canal problems found the two best justified conclusions were that the prognosis for cases exhibiting periradicular rarefaction and overfilling is poorer than where these conditions are absent.

In view of these facts, this pilot study was designed to produce additional information on the 'hollow tube effect.'

METHODS AND MATERIALS

Hollow polyethylene tubes of various inside diameters and lengths were implanted in the subcutaneous connective tissue of rats. The tubes were cut in lengths of 6 mm., 10 mm., and 15 mm. Sections of similar length were sealed at both ends to act as control rods. The six inside diameters of the Adams PE-160 Intramedic polyethylene tubing chosen were 0.59 mm., 0.77 mm., 1.0 mm., 1.2 mm., 1.4 mm., and 1.7 mm.

Before the tubes were surgically implanted in the rats, they were disinfected by immersion for 24 hours in 1:1,000 benzalkonium chloride (Zephiran).

Sixty day old, healthy, male Wistar rats, weighing 160-200 grams, were used in this investigation. After the animals were anaesthetized by ether in a covered

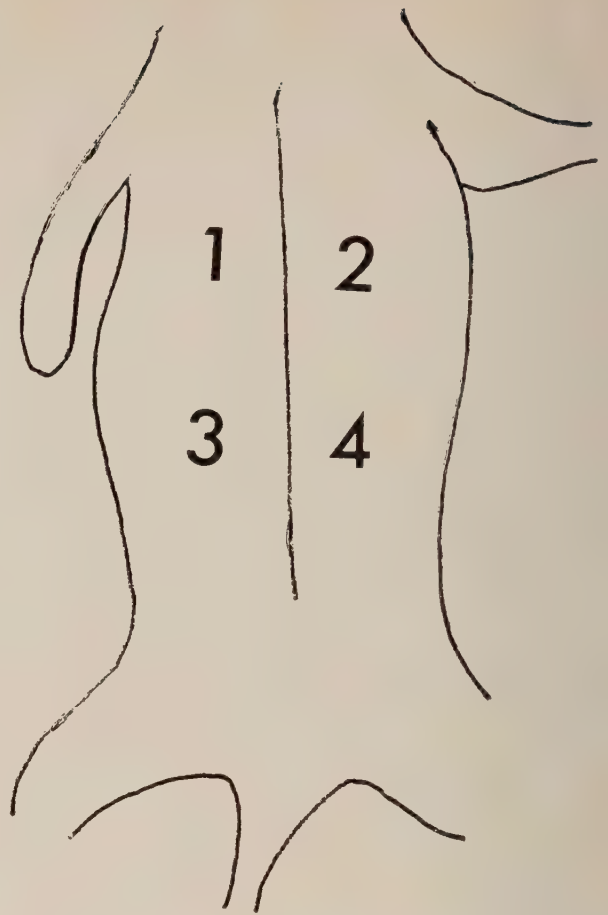


FIGURE 1 The four dorsal areas of the rat that were used for the implants.

jar, their dorsal area was shaved with animal electric shears. All the surgical instruments and suture materials were previously sterilized by autoclaving. A clean, longitudinal skin incision was made from the interscapular area to the pelvic area. The skin was lifted and four separate subcutaneous areas (Figure 1) were prepared on each animal with blunt tweezers. Four polyethylene tube sections were positioned in these four areas on each animal. The incision was closed by suture clamps. The animals were then maintained under normal cage conditions for 60 days. Each length and diameter of tube was implanted twice, for a total of 36 in all. With every implant, the general principles of rat surgery as suggested by Farris and Griffith⁹ were followed.

At the end of 60 days the animals were killed by ether suffocation. A wide excision was made around each implanted tube and the 36 tissue specimens thus obtained were excised and prepared for microscopic examination. The specimens

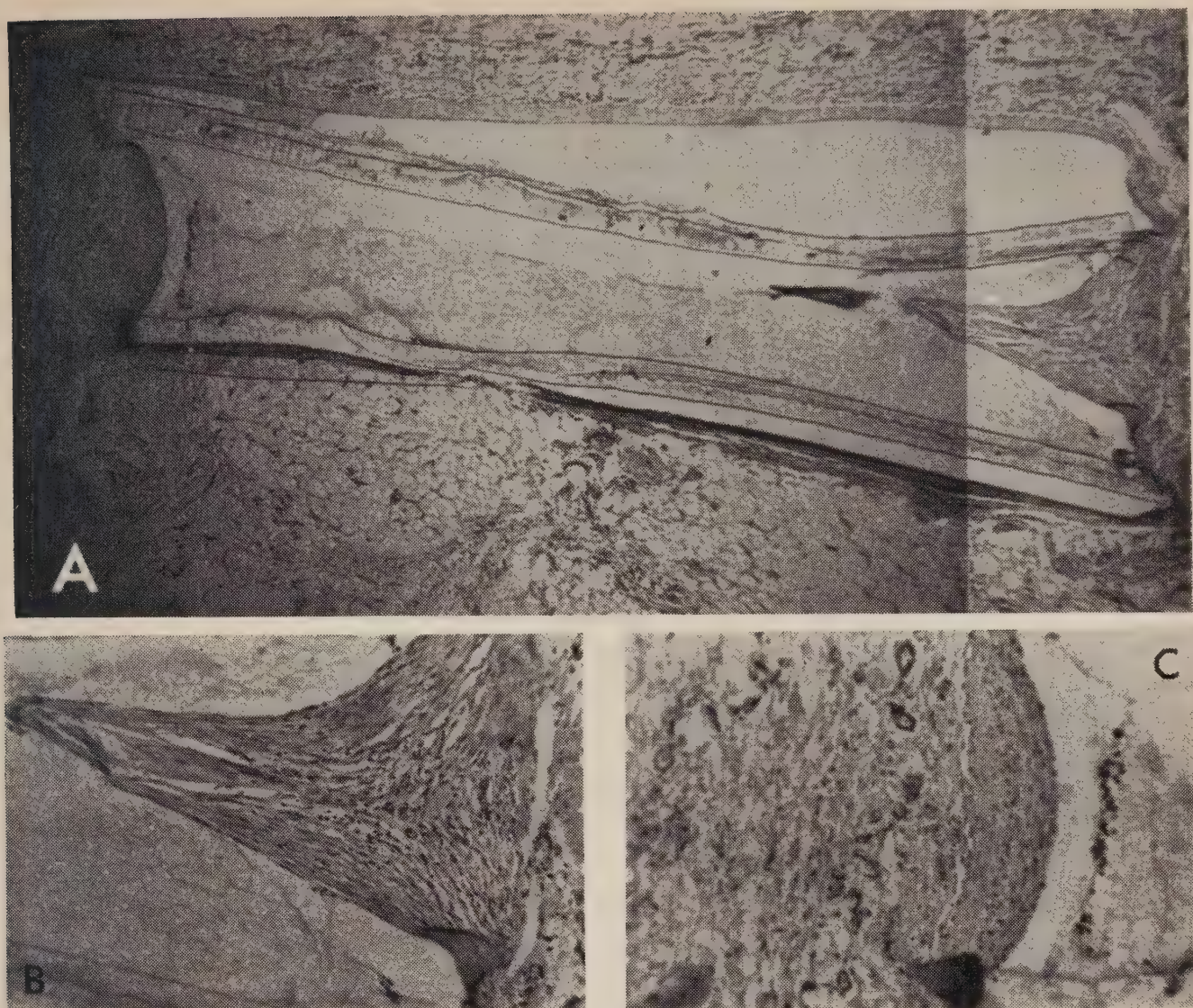


FIGURE 2 (a) Hollow polyethylene tube implant after 60 days showing fibrous tissue encapsulation. The tube was 6 mm. long and had an inside diameter of .59 mm. Haematoxylin and eosin, x 25. (b) and (c) Fibrous connective tissue capsule seen at ends of tube in (a). Haematoxylin and eosin, x 100.

were fixed in 10 per cent formalin, dehydrated in ethyl alcohol, and cleared with acetone and chloroform. They were then embedded in paraffin (Paraplast) and serial sections, 6μ in thickness, were cut through the tube and surrounding tissues in a longitudinal plane. The sections were stained with haematoxylin and eosin.

OBSERVATIONS

The histological sections showed, with two minor variations, a similar tissue response to the implantation of the hollow polyethylene tubes. Around each tube a connective tissue capsule was formed as shown in Figure 2. This capsule consisted

of young and mature fibroblasts, collagen fibres and a few plasma cells and monocytes. There was very little inflammatory infiltration of the area either along the walls of the tube or at the open ends. The connective tissue of the capsule was a little more vascular and showed several capillaries containing red blood cells. At this time interval, the characteristic vascular and cellular changes of the inflammatory process were not seen. No concentration of polymorphonuclear leukocytes or evidence of necrosis was observed in the tissues adjacent to the open ends of the tubes (Figures 2b and c).

Two variations were seen from this usual picture and were possibly associated with the length and diameter of the tubes. In tubes of 6 mm. length and

of the larger diameters (1.4 and 1.7 mm.), an invagination of the connective tissue was observed in the lumen of the tube as shown in Figure 3a. This connective tissue was of the same character as the rest of the capsule and contained the usual cellular elements along with a small thin walled blood vessel containing red blood cells.

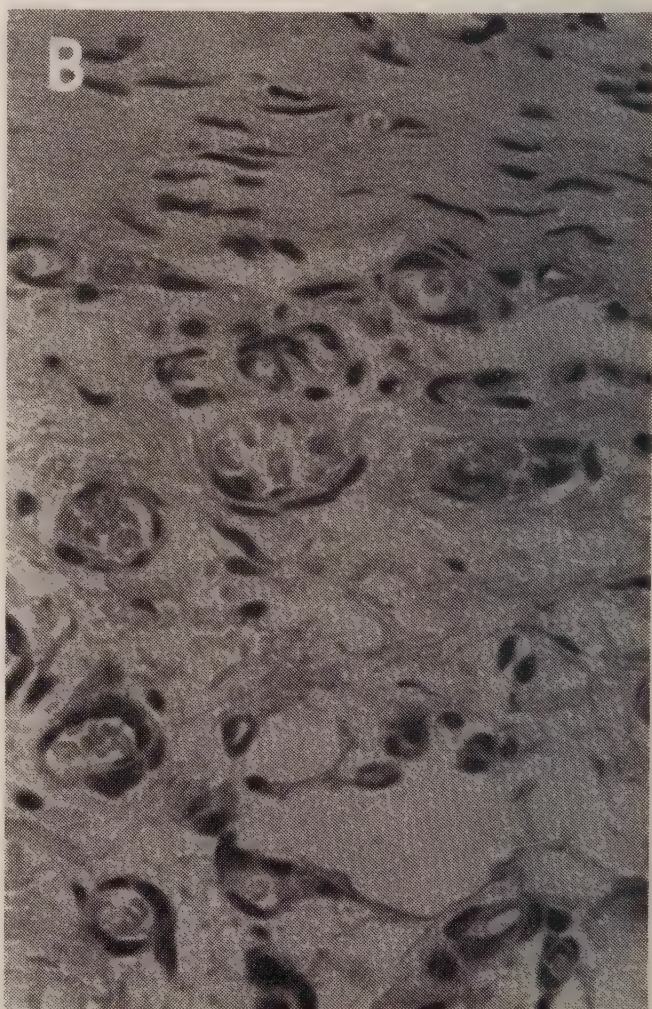
The hollow central part of the tube contained a light pink-staining material, presumably dehydrated tissue fluid. The lack of any significant cellular infiltration in the depth of the tube may have been due to a lack of nourishment for the cells in this area.

All combinations of lengths and diameters produced excellent histological specimens, with the exception of the 15 mm. lengths of the two smallest sizes (0.59 and 0.77 mm.). In these two instances the long, thin tubes presented difficulties in sectioning.

DISCUSSION

Polyethylene tubing was selected because it poses few problems when sectioned with the surrounding tissues and because the flexibility of the material permits movement of the animal and its skin without irritation from the implant. The inflammatory response of the host tissues to the implants, after a period of 60 days, was the primary consideration in the evaluation of the microscopic findings of this study. Gattuso¹⁰ and Boyd and Mitchell¹¹ in their investigations found that the rat's connective tissue is ideal for this type of study. The connective system is inter-connected throughout the animal body and is formed of similar elements: cells, collagen, elastic and reticular fibres and ground substances. The fibrous encapsulation of the polyethylene tube implants, which was similar in every section examined, is

FIGURE 3 (a) Photomicrograph shows the invagination of the fibrous capsule into the end of the polyethylene tube. The tube was 6 mm. long and had an inside diameter of 1.7 mm. Haematoxylin and eosin, x 40. (b) Higher magnification of the same area showing rich capillary blood supply. Haematoxylin and eosin, x 400.



a characteristic inflammatory response of all fibrous connective tissue to non-irritating substances.

No evidence of the 'halo of irritation,' reported by Rickert and Dixon,¹ was found at the open ends of the tubes. Torneck,¹² in 1961, reporting on his control specimens stated that, after a period of 96 hours, he observed no evidence of tissue irritation either from the 'hollow tube effect,' from polyethylene or from the mechanical trauma of the surgical procedures.

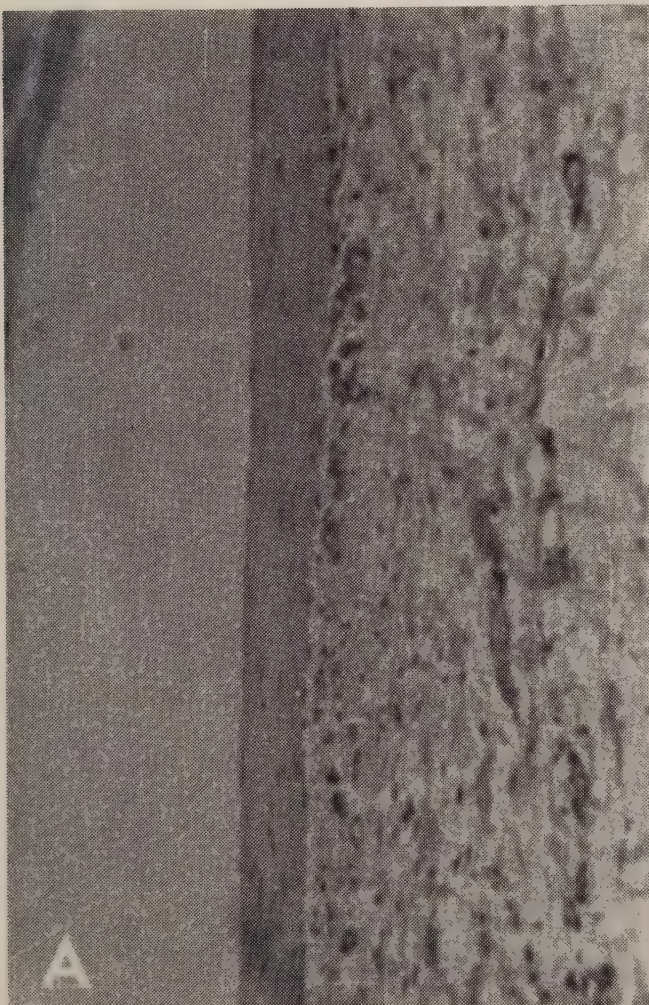
The invagination of the connective tissue into the open ends was observed in the tubes of shorter length and greater inside diameter. The absence of this ingrowth in the longer and narrower tubes was probably due to the small amount of connective tissue in the lumen of these tubes. This tissue received inadequate nourishment for invagination from the few small capillary blood vessels of this

narrow area. In all sections, however, a connective tissue capsule completely surrounded each implanted tube (Figure 4).

Two other investigators using hollow tube implants in experimental animals obtained similar results to those reported in this paper.

Selye¹³ used glass tubes 3 cm. long and 0.8 mm. wide implanted in dorsal areas of rats. He showed with a simple tube open at both ends that there was no irritation at either end and that a bridging connective tissue cord joined the two orifices. Selye further states that "curiously within the limits which have been studied so far, the speed with which the two openings are connected by an axial cord, and the thickness of these bridges are largely independent of the length and width of the glass tubes." The empty space in the glass tube was filled soon after implantation by a cit-

FIGURE 4 (a) The wall of the capsule in the median portion of the tube is shown. Haematoxylin and eosin, x 100. (b) The same section is shown at higher magnification. Haematoxylin and eosin, x 400.



rine, thick fluid. Selye next observed that fibrin threads invaded and covered by histiocytes connected the openings. This was followed by further organization of the connective tissue and invasion by blood vessels.

Goldman¹⁴ implanted plastic tubes and rods as well as steel hypodermic needles and rods in guinea pigs and rats. Some of these tubes contained tetrazolium salts, a chemical which turns blue when it comes in contact with a reducing enzyme. Goldman found no evidence of inflammation around open ends of needles or plastic tubes. Instead, he observed a fibrous tissue capsule with few cells surrounding the opening. From his work with the tetrazolium salt, Goldman concluded there was cycling or circulation of tissue fluid in and out of hollow tube in the connective tissue fascia.

In evaluating all these results, one should remember that "there is a considerable gap between the animal room, the pathologists' laboratory and the clinic or dental office and one must be cautious about making direct inference from these experimental studies."¹⁵

SUMMARY

1. Hollow polyethylene tubes of various lengths and diameters were implanted in the subcutaneous tissue of the dorsal area of 12 rats.

2. Four tubes were implanted in each rat.

3. The rats were killed after 60 days and histological serial sections made of all implant areas.

4. Microscopic examination revealed that all tubes were encapsulated by fibrous connective tissue. Moreover, the shorter tubes with the larger inside di-

ameters demonstrated an invagination of connective tissue into the open ends of the tube.

CONCLUSION

This investigation failed to confirm Rickert and Dixon's hypothesis of a 'hollow tube effect.' No inflammatory response was found at the open ends of any of the tubes implanted. Other experiments using a similar method and a variety of time intervals and materials are now in progress. These may yield further information about this problem.

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Haemangioma of the edentulous mandible

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A case of cavernous haemangioma in the edentulous mandible of a 67 year old male is described. The radiographic appearance of this lesion has only limited diagnostic value. Non-surgical diagnostic tests, including aspiration of the lesion and angiograms, should be performed when a haemangioma is suspected.

■

Les auteurs décrivent un cas d'haemangiome caverneux situé à la machoire inférieure d'un patient de 67 ans. L'apparence radiologique de la lésion ne permet pas de faire un diagnostic précis. Il est nécessaire d'avoir recours aux épreuves de diagnostic non-chirurgicales telles que l'aspiration et l'angiogramme lorsque l'on croit avoir affaire à un haemangiome.

In recent years several reports have described the pathological features, diagnosis, and treatment of haemangiomas of the jaw. Smith¹ in 1959 and Lund and Dahlin² in 1964 reviewed in detail all 39 cases reported since 1849.

Though 10 new cases, including some of those described by Smith and Lund, have been recorded since 1959²⁻⁴ it is still agreed that haemangiomas arising in the bones of the facial complex are rare.^{1,3,5,6} Lund and Dahlin² reported that 55 per cent of the lesions occurred in patients up to the second decade of life. Two-thirds of all these haemangiomas were lesions of the mandible.

All of the fatal or near fatal experiences occurred in patients who were in

the first decade of life.^{2,4} Excessive dramatic blood loss, extremely difficult to control, as well as deaths have been reported following tooth extractions and biopsies.^{1,4,7,8} In all of these instances mandibular lesions were very closely associated with the apices of teeth.^{1,2,4,9} Excessive haemorrhage, on the other hand, has not been a problem when haemangiomas of the mandible were encountered in older persons. Cavernous haemangiomas involving an edentulous mandible have been described by Worth,¹⁰ but are extremely rare.

CASE REPORT

On September 29, 1964, a 67 year old white male attended the Department of Oral Surgery, Boston City Hospital. A routine intra-oral radiographic survey revealed a multicystic lesion in the left body of the mandible. After a provisional diagnosis of ameloblastoma, the patient was admitted to the hospital for complete medical evaluation.

History. — The previous history included several hospital admissions for 'arteriosclerotic heart disease' and 'involutional depressive reactions with neurocirculatory asthenia.' The patient had been followed regularly on an outpatient basis but no medication had been prescribed within the past year.

Examination. — The patient was a small and thin male. Vital signs were within normal limits. Chest diameter was increased anteroposteriorly and the chest radiographs confirmed the existence of generalized pulmonary emphysema.

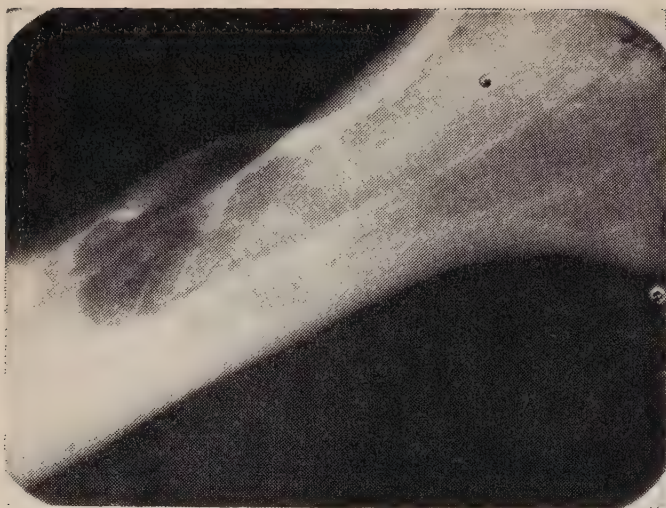


FIGURE 1 Intra-oral radiograph of mandible showing multilocular radiolucent area and expansion of bone.



FIGURE 2 Oblique lateral radiograph of lower jaw showing location of the lesion and its relation to the inferior dental canal.

The maxillary and mandibular arches were edentulous. Slight lingual expansion of the left mandibular alveolar process was observed. The overlying mucosa was of normal colour and consistency. No pulsations were felt.

Laboratory findings (complete blood count, urinalysis, and serum alkaline phosphatase tests) were within normal limits. The electrocardiogram was normal.

Radiographic examination with lateral jaw, occlusal and periapical views of the mandible revealed a rather indistinct group of multilocular radiolucent areas extending from the left third to first molar area (Figures 1, 2). Some scalloping was observed at the margins of the lesion. Expansion and thinning of the bone was observed on the occlusal border of the crest of the alveolar process. The occlusal film showed a slight irregular lingual expansion of the bone. The lesion appeared to involve the mandibular canal. A provisional diagnosis of ameloblastoma or haemangioma was

made on the basis of radiographic findings.

Biopsy. — Using premedication and 2 per cent mepivacaine block anaesthesia, the lesion was aspirated with only a scanty return of blood. A mucoperiosteal flap was then turned to expose the site from the retromolar pad area to the bicuspid region. The exposed bone was grey in appearance, egg shell thin and expanded. Upon removal of the overlying bone a fibro-granular mass was found. The bulk of the tissue was removed with ease but the deeper diverticulum-like extensions of residual tissue were difficult to remove. The largest specimen measured 1.0 x 0.5 x 0.5 cm. Smaller pieces were submitted for pathological examination. Blood loss was minimal. The wound was closed with 000 silk. The patient tolerated the operation well and returned to the ward in satisfactory condition.

Pathological Report. — The gross specimen submitted for pathological examination

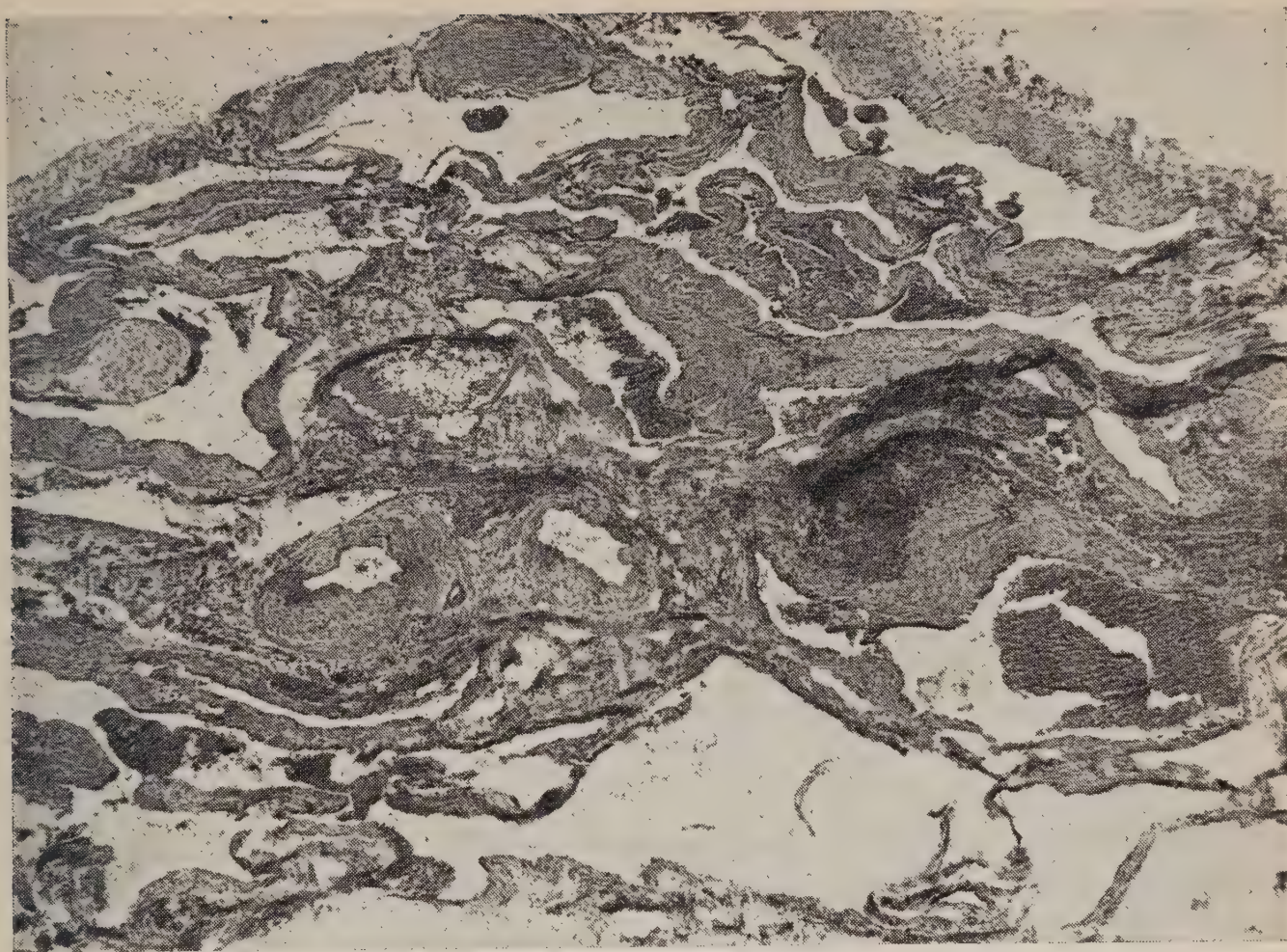


FIGURE 3 Photomicrograph of biopsy specimen. Haematoxylin and eosin, x 70.

consisted of a dark greyish brown tissue. The bisected specimen revealed several small cystic spaces containing dark material.

Microscopic investigation revealed numerous sinusoids of varying sizes and lined by endothelium. The vascular spaces were separated by varying amounts of dense fibrous tissue. A diagnosis of cavernous haemangioma was made on the basis of the microscopic findings (Figures 3 and 4).

DISCUSSION

Whenever haemangioma of the mandible is present, one must proceed with great caution. The diagnosis can rarely be made from radiographic findings alone; yet this may be the only information available before biopsy.¹¹ The indistinct appearance in the radiograph, loosening of teeth (without good reason)

in young people, and, occasionally, fine radiating spicules extending vertically from the bone are often the only indications of haemangiomatous involvement.

Histologically, we distinguish two kinds of bony haemangioma: a capillary type where fine capillary loops spread outward in sunburst fashion, and a cavernous type where large thin-walled vessels and sinusoids are formed from invaginated endothelial cells among the bony trabeculae.^{1,2,8,10,12}

A variant of each type may be the scirrhus or sclerosing haemangioma.¹² These terms are usually applied to haemangiomas which undergo spontaneous regression through replacement of vascular sinusoids by connective tissue and then by bone matrix.⁵

The case described here appears to fall into the latter category. Such growths, when surgically interfered with, do not produce much bleeding.

Because of the importance of establishing a pre-operative diagnosis, the utili-

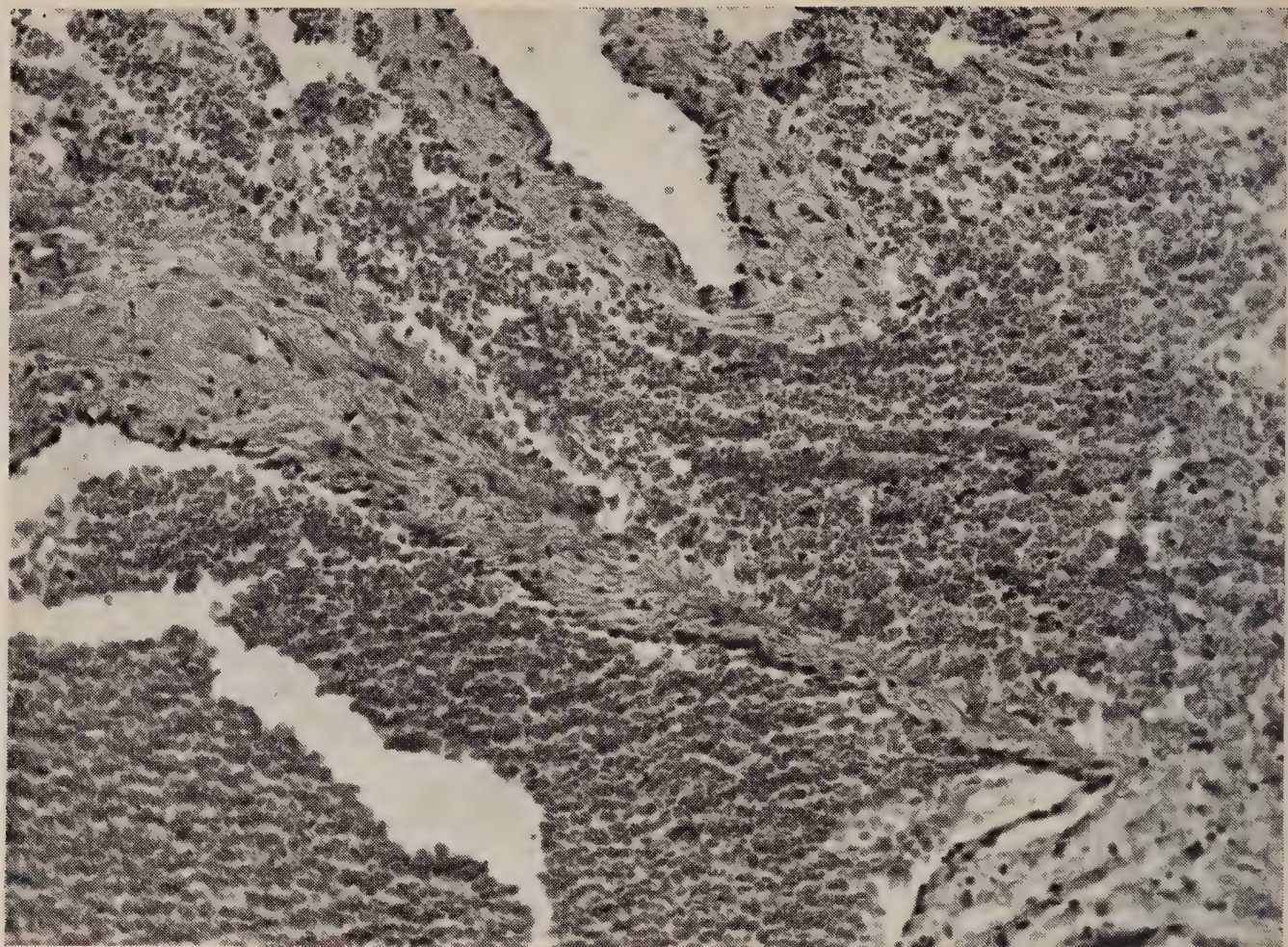


FIGURE 4 Photomicrograph of biopsy specimen showing thick walled sinusoids lined by endothelium. Haematoxylin and eosin, x 280.

zation of angiograms appears to be justified. Pre-operative ligation of the ipsilateral external carotid artery has been recommended by Thoma and others; however, current authors have not found routine ligation of this artery effective, even in acutely haemorrhaging lesions.^{4,13}

SUMMARY

A case of cavernous haemangioma in the edentulous mandible of a 67 year old male is described. This report demonstrates that the radiographic appearance of the lesion has only limited diagnostic value. All non-surgical diagnostic tests, including aspiration of the lesion and angiograms, should be performed when a haemangioma is suspected.

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Headache and other head pain arising from the masticatory system

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Many persons suffer from periodic headache and facial pain. Clinical experience over a 10 year period with 62 consecutive cases of severe periodic head pain provide convincing evidence that the source of this pain is often located in the masticatory system and frequently results from dysfunction of that system. The establishment of normal function in such patients is an essential prerequisite to successful treatment.

Un grand nombre de patients souffrent de maux de tête périodiques et de douleurs faciales. Les observations faites dans 62 cas consécutifs de maux de tête graves ont conduit l'auteur à croire que l'origine de cette douleur se trouve souvent au niveau de l'appareil masticatoire et qu'un désordre de la fonction de celui-ci est souvent à l'origine de ces douleurs. Dans ces cas, il est indispensable de restaurer une fonction normale pour que le traitement réussisse.

For many years we have investigated various aspects of the aetiology, treatment and prevention of periodontic disease. Our basic approach in clinical and experimental studies was to investigate the physiological processes concerned with repair of the periodontium and maintenance of its integrity. Periodontic disease results from a derangement of these processes. Disturbances in the functioning of the masticatory system contribute to such derangement.

Occlusal disharmony is the commonest cause of dysfunction of the masticatory

system. Therefore, one objective of occlusal adjustment is the establishment of normal functioning of the system. The treatment of periodontic disease is not discussed in this paper; instead, I report my experience in the treatment of headache and other head pain which resulted from the application of the approach outlined above.

On occasion, patients have reported that they experienced periodic headache which subsided following periodontic treatment. About 10 years ago I began to investigate the possibility of a relationship be-

tween periodontic treatment and the relief of periodic head pain of various types. My clinical results convinced me of the existence of a causal relationship in at least some cases. The treatment most commonly associated with the relief of head pain was occlusal adjustment. I therefore concluded that masticatory dysfunction is an aetiological factor in head pain in a significant percentage of cases.

In 1963 I began a clinical study of patients subject to periodic headache and other head pain. Results of this study, to be reported in another paper, were based on the treatment of 62 consecutive cases of severe periodic head pain referred for treatment over a 12 month period (1963-64). All patients had previously consulted their physician and many had been referred to specialists. No physical sign or radiographic abnormality could be found to account for the pain. The head pain here described occurred in otherwise healthy individuals. Pain in most patients was unilateral. A number had temporomandibular joint pain and two patients described the symptoms of *tic douloureux*. Of the 62 patients, 49 in their own opinion were cured, in eight the frequency, intensity and duration of the attacks were reduced and five patients reported no improvement. The treatment of periodic head pain is now a routine part of my practice.

Clinical results of the past 10 years indicate that periodic head pain in otherwise healthy individuals is often caused, at least in part, by disturbances in the masticatory system. Such disturbances most commonly result from dysfunction of the system. Common sites of head pain are the supra-orbital, temporal, zygomatic and occipital areas, around the ear and the temporomandibular joints; however, pain may occur in almost any part of the head and neck. This pain is of deep aching, burning or stabbing character and is seldom of the throbbing type. Some patients described trigger zones as in *tic douloureux*. In the majority of cases the attacks began in adult life. A few patients experienced initial symptoms in their teens. Pain usually lasted from eight to 36 hours. Frequency varied from three times a week to once a month.

The pain was usually severe and the commonly used analgesics gave little relief. The commonest associated symptom was nausea, sometimes with emesis. A few patients reported eye symptoms such as zigzag flashes, periods of diplopia, or conjunctivitis with profuse watering.

There appeared to be considerable variation in the response to treatment. Some patients obtained complete relief immediately following the completion of treatment. In others relief was more gradual, the frequency, intensity and duration of the attacks being reduced for periods of up to a month before complete relief was obtained. Occlusal adjustment usually requires several appointments. Some patients obtained relief after the first appointment. In others there was no improvement until the occlusal adjustment was perfected. All patients were kept under active observation until either the patient reported complete relief or I was satisfied that I could not improve the condition.

DISCUSSION

The clinical results indicate that in many cases the head pain is initiated, at least in part, in the masticatory system. The headache and facial pain described in this paper are, then, a dental as well as a medical problem. Two obvious questions arise: how do disturbances in the masticatory system, largely but not entirely of dysfunctional origin, cause head pain; and how does the establishment of normal function by occlusal adjustment correct this condition? Possible answers may be deduced on closer examination of the mechanism of head pain, the relevant physiology of the masticatory system, and the treatment of occlusal disharmony.

Head Pain. — The vast majority of discomforts and pains in the head emanate from pain sensitive structures on the outside of the head rather than from within the cranium.¹ Reference to some facets of the general subject of pain is helpful in considering head pain. The sensory

system subserving pain is ordinarily quiescent. Most other sensory systems are continually conducting impulses to the central nervous system. Normally, no impulses travel the pain pathways unless tissues somewhere in the body are distorted or damaged. In tissue distortion the pain endings are activated when they are stretched, while damaged cells liberate chemical substances into the tissue fluid which then stimulate the nerve endings. Pain of chemical origin in deep somatic structures is largely restricted to muscle. In this tissue the perivascular complexes may be excited by local anoxia, acidosis or the accumulation of lactic acid and histamine in the tissue fluids. In other words, a patient complaining of pain has pain in the sense that tissue abnormality is producing abnormal activity in his sensory nervous system.² Such tissue abnormalities may occur in the masticatory system.

Noxious stimulation refers to activation of the sensory system subserving pain. Experimental noxious stimulation of the fifth cranial nerve produces head pain. This pain is of two types: (a) that due to central spread of excitation and experienced in tissues supplied by the same and adjacent divisions of the fifth nerve, and (b) that due to sustained contraction of the muscles of the head and neck resulting secondarily from the noxious stimuli.¹ Thus, pain may be experienced at a point remote from the site of noxious stimulation. Experimental evidence and observations in patients suggest that another cause of headache is distension, vasoconstriction and vasodilation of the arteries of the scalp. Psychological factors have long been thought to play a role in the aetiology of headache. The evidence suggests that head pain results from interaction between a number of such factors.¹

In this work we are primarily interested in noxious stimuli arising in the masticatory system. The noxious stimuli may arise in the mucous membrane of the mouth, the teeth, the periodontium, the temporomandibular joints and the muscles. Noxious stimuli from the mucous membrane and the teeth may cause head pain. However, such stimuli usually make themselves known to the patient by

local pain and tenderness. This may not be the case with noxious stimuli arising in the periodontium, the temporomandibular joints and the muscles. The noxious stimuli are transmitted in the fifth cranial nerve to the trigeminal nucleus which has connection with the cortex, the thalamus, the hypothalamus and downward as far as the third or fourth cervical level. The visceral and circulatory changes associated with head pain may be contributed through the thalamo-hypothalamic connections,² in which case the reaction of the central nervous system to noxious stimulation of the fifth cranial nerve could result not only in the head pain but also the associated visceral and circulatory changes mentioned. In any case, when the head pain is relieved the associated symptoms also disappear.

Relevant Physiology. — The commonest cause of dysfunction is occlusal disharmony. This is defined as an occlusal form and/or intermaxillary arrangement out of harmony with the individual pattern of movement.³

The physiology of the masticatory system resembles that of other musculo-skeletal systems for production and utilization of mechanical energy where part of the skeleton is moved by skeletal muscles. It does, however, possess certain unique characteristics. Musculo-skeletal systems function in a pattern characteristic for an individual. This is illustrated by the function of walking. Everyone has a characteristic gait. Each individual also has a characteristic pattern of functional movements of the masticatory system. Such systems are literally maintained by their function. Without function they atrophy. Obviously, the functional forces play an important role in the metabolism of the bone and connective tissue structures. For example, the nutrition of these tissues is dependent in part on the functional forces. Under normal conditions the tissues adapt to changes in the functional forces. Their function is reflexly controlled. Stimulated by function, afferent impulses send information to the central nervous system regarding the state of the tissues and the effect of the functional forces on them. The afferent impulses affect func-

tion and play an important role in giving a pattern to the functional movements that is characteristic for the individual. In other words, through the nervous system, the structures that maintain and utilize the muscle forces exert a measure of control over the forces to which they are subjected. This gives the systems remarkable self-protective characteristics under adverse conditions. The afferent stimuli in the masticatory system arise in the muscles and associated parts, temporomandibular joints, periodontium, teeth and the mucous membrane of the mouth. In physiological function the muscles work properly. Moreover, the forces which they generate have a beneficial influence upon the metabolism of bone and connective tissue structures, thereby maintaining the functional structural harmony essential for the health of the system.

The masticatory system operates by engaging of the upper and lower teeth. If they engage improperly, the physiological processes by which the integrity of the system is maintained are disturbed. Common reactions of the system to functional disturbances are a change in the pattern of functional movements, usually a limitation of movement, and a reduction in the amount of force generated by the system. These reactions are brought about reflexly and are essentially protective, tending to preserve the integrity of the system. Thus, reflex control permits the least harmful function under the conditions present. The pattern of functional movement characteristic for an individual may then be a deviation from the normal. Under the conditions of modern living various degrees of deviation from physiological function of the masticatory system are the rule rather than the exception. Functional disturbances interfere with the physiological processes by which the system operates and may lead to functional disorders, pathological changes in the periodontium, temporomandibular joints, muscles and associated parts.³ Functional disorders may then cause noxious stimulation of the fifth cranial nerve, initiating a chain of events which, together with other factors, may result in headache and other head pain.

The investigation of the basic organic dysfunction caused by occlusal disharmony is an active field in dental research. Silverman⁴ describes experiments which indicate that occlusal disharmony may cause sustained muscle contraction. These studies reveal the difference between postural stability of the temporomandibular joints and postural instability of the joints due to occlusal imbalance. In these studies it was demonstrated that muscles such as the temporalis can be placed in hyperactivity by postural imbalance or occlusal contact on one side only. The hyperactivity will persist and even involve the remaining muscles on the same side but will stop immediately if the occlusal or postural disharmony is removed and the teeth are able to make one stable simultaneous bilateral occlusal contact. Silverman believes that the proprioceptive or touch stimulus is necessary to relieve hyperactivity of the musculature. Where postural stability is not possible, there ensues a continuous contraction which ranges from just a few fibres of the individual muscles to a marked splinting of all the muscles associated with temporomandibular joint movement. He concludes that the bilateral control of the muscles of mastication associated with temporomandibular joint movement calls for postural stability which is bilateral and instantaneous. Posselt³ expresses somewhat the same thought when he states that the muscles will always seek tooth-to-tooth contact even if it jeopardizes postural symmetry, in which case it will increase muscle activity. Again, Ramfjord⁵ found that any type of occlusal interference may trigger muscle spasm and pain, but the most consistent and significant interference is a discrepancy between centric relation and centric occlusion. Sustained contraction in a masticatory muscle, sufficient to cause noxious stimulation of the fifth cranial nerve, may secondarily cause increased sustained contraction in the masticatory and other muscles of the head and neck.

One common functional disturbance that leads to functional disorders is bruxism. Posselt³ defines bruxism as the grinding or clenching of teeth when not masticating or swallowing. This condi-

tion is caused, in part, by abnormal afferent stimuli from anywhere in the masticatory system. Bruxism can often be successfully treated by occlusal adjustment. In bruxistic clenching the muscles contract isometrically and tire much more quickly than during normal functional movements. Bruxistic clenching is an abnormal function and further aggravates the effects on the tissues of any existing basic dysfunction. Psychological factors may contribute to bruxism, further aggravating the situation. My clinical results suggest that bruxism is a common cause of head pain.

Treatment. — The problem of occlusion has been a controversial subject for many years. The several schools of thought interpret the term occlusal adjustment in many ways. I believe that when the masticatory system functions improperly all the parts suffer because the physiological processes by which it performs its function and maintains its integrity are disturbed. Disturbance of those processes by which the periodontium maintains its integrity renders it more susceptible to breakdown from periodontic disease. Likewise, functional disturbances in the temporomandibular joints and the muscles may lead to functional disorders. It follows, then, that one primary objective of occlusal adjustment is to establish a characteristic pattern of function which enables the muscles to work properly and exert their forces adequately so as to benefit the metabolism of bone and connective tissue structures. Abnormal patterns of the functional movements (largely reflexly controlled) must be changed. The information conveyed to the central nervous system by the afferent impulses stimulated through function must be such that the resultant reflexly controlled pattern of functional movements is more compatible with the health of the system. For example, a premature occlusal contact reflexly causes deviation from the normal pattern of functional movement. This deviation is essentially protective and will persist until the premature contact is eliminated.

One of the difficulties in the treatment of head pain is to establish a normally

functioning masticatory system under the wide variety of conditions encountered. Occlusal adjustment may be achieved by orthodontic treatment, occlusal grinding and prostheses of various types. I use the latter two methods almost exclusively. When prostheses are used, the final adjustment is always by occlusal grinding. I view occlusal wear as an important factor in the physiological maturation of the dentition by which normal functioning of the masticatory system is maintained. Conversely, lack of wear is one factor contributing to dysfunction of the system. While there is usually insufficient wear under modern living conditions, the wear that does occur is important. Interference with wear is undesirable. Occlusal adjustment is most difficult in patients where most of the occlusal surfaces are of gold. Two main reasons account for this: first, hard golds wear little if at all, and secondly, the occlusion of large inlays, crowns and bridges often does not harmonize properly with that of the rest of the teeth except in centric relation. Closure in centric relation is a normal movement in swallowing but not in mastication. In a number of patients the attacks of head pain began after the insertion of a fixed bridge. My records show that more than three times as many women as men are subject to head pain. I would therefore urge caution in making fixed bridges for women subject to periodic headache, particularly if the bridges involve the upper chewing area. Moreover, such female patients are not good subjects for extensive oral rehabilitation. Amalgam fillings wear better than gold inlays. I prefer these restorations, particularly in the upper chewing area. For various reasons, gold restorations that involve the lingual cusps in the upper chewing area cause the most difficulty in occlusal adjustment. For example, a three-quarter crown in the upper chewing area creates much greater difficulty than a similar restoration in the lower jaw. Of course, full coverage in the chewing areas is still more unsuitable and should be avoided where possible.

In the past, when planning restorations, I considered only their effect on

the teeth and supporting structures. I am now convinced that we should also consider their effect on the function of the entire masticatory system. It is not known how many people suffer from periodic head pain, but I suspect that it is more prevalent than is generally believed. In addition to the pain, this affliction usually seriously affects the individual's outlook on life and mode of living. Care should therefore be exercised to avoid contributing to the dysfunction.

In addition to occlusal adjustment, conditions (infection or trauma) that may cause periodic hyperaemia in the periodontic membrane should be eliminated. Such conditions may result in abnormal afferent impulses even though the patient may not be aware of local pain or tenderness.

PROGNOSIS

Where a reasonably normal pattern of function can be established, the prognosis for the treatment of temporomandibular joint pain is good. About 75 per cent of patients with unilateral headache and facial pain respond well, particularly those patients where the attacks began in adult life. In my experience, onset in the majority of cases begins in adult life. The treatment of bilateral headache is less predictable. I have had

little success with patients subject to bilateral headache since childhood.

CONCLUSIONS

Many people suffer from periodic headache and facial pain. In many cases the disturbance is in the masticatory system, most commonly resulting from its dysfunction. In such cases the establishment of normal function is a requisite for successful treatment of the affliction.

Considering the role of the occlusion in the functioning of the masticatory system and the possible serious consequences of its dysfunction to susceptible individuals, it seems obvious that no one but a fully qualified dentist should ever be permitted to supply prosthetic restorations to the public.

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Commonwealth Foundation Established • British Commonwealth member nations, including Canada, joined to establish a Commonwealth Foundation in March 1966. Primary aims of the foundation are to develop exchanges in the non-governmental field, to broaden the basis for personal contacts and professional interchanges particularly between members of the professions in newer Commonwealth countries and young professional people, and to encourage the flow of scientific, technical and other types of professional information between non-governmental organizations throughout the Commonwealth. To achieve these aims, the foundation provides appropriate financial and other assistance. The foundation is financed by contributions from Commonwealth governments. Canada provides approximately \$112,500, representing nearly 15 per cent of the foundation's annual budget. Mr. Escott Reid, principal of Glendon College of York University, Toronto, is Canada's representative on the Board of Trustees of the Commonwealth Foundation.

The asymptomatic impacted third molar

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Impacted unerupted third molars frequently give rise to pericoronitis, resorption of adjacent teeth, cyst formation and other dental complications. Erupted third molars may predispose to food impaction, caries, formation of periodontic pockets, malocclusion and even temporomandibular joint dysfunction. Such teeth should be extracted between the age of 18-25 when the operation for their removal is relatively uncomplicated. Retention is only advocated for normally functioning teeth that may serve as an abutment or attachment for a dental appliance or where the removal of such teeth would jeopardize the health of the patient.

Les troisièmes molaires entièrement incluses entraînent fréquemment des péricoronites ou la résorption des dents adjacentes, la formation de kystes et d'autres complications. Les troisièmes molaires qui ont percé prédisposent à la rétention alimentaire, à la carie, à la formation de sacs périodontaires, à la malocclusion et aux dysfonctions articulaires. Il faudrait extraire ces dents entre 18 et 25 ans, alors que l'opération pose peu de problèmes. On ne conseille de les conserver que lorsque ces dents fonctionnent normalement et peuvent servir de piliers ou d'attaches pour des appareils de prothèse ou lorsque leur extraction risquerait de mettre en danger la santé du patient.

For years patients have been advised to leave impacted or unerupted third molars undisturbed unless they cause discomfort. We agree that some patients may retain these teeth throughout life without apparent ill effect. In others — particularly in older patients — these teeth may precipitate severe and alarming complications. We are therefore obligated to give patients a definite prognosis con-

cerning impacted or unerupted teeth. (Figures 1 and 2).

There has been a perceptible increase in the incidence of malposed and impacted third molars. This has been attributed to evolutionary change. However, such a phenomenon may also be connected with the utilization of more advanced diagnostic methods as well as greater emphasis on this problem in the undergraduate curriculum.

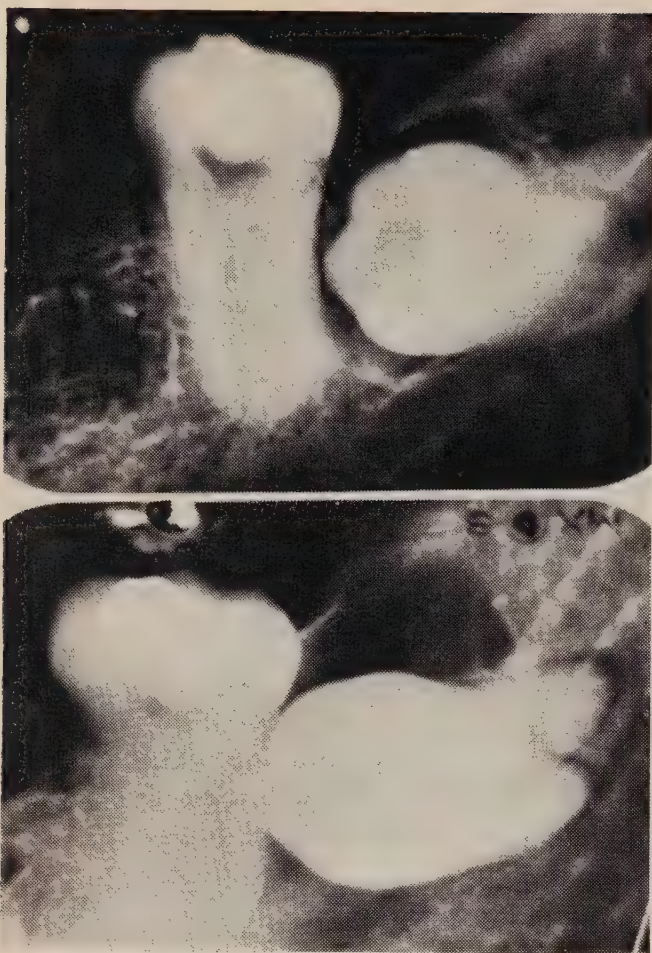


FIGURE 1 Above: asymptomatic impacted lower third molar of a 30 year old man. He was advised to "leave it until it bothers you." Below: a large cyst developed about the crown two years later and the tooth migrated mesially. (Courtesy of Col. R. B. Shira.)

INFECTION

The third molar area differs anatomically from other parts of the mandible. It lies in the masticator space — a potential space formed by facial planes encompassing the masseter and the internal pterygoid muscles extending up the mandibular ramus. Not only are the apical root ends of the developed mandibular third molar frequently in close approximation to the mandibular canal, but many are also covered lingually by a very thin cortical plate of bone. Being in the masticator space area, infection of the third molar is significant because toxins, organisms and so forth can travel upward, laterally or medially to the ramus producing severe muscle spasms and trismus. If infection penetrates through the facial boundaries, it may invade the lat-

eral pharyngeal space and progress to the mediastinum.

GROWTH AND DEVELOPMENT

Broadbent¹ has stated "that at the time of eruption of the permanent teeth, if supporting bones are not harmonious in size with the dental organs, then the teeth assume the position similar to that occupied within the bone at a younger age. In proportion to the degree of retardation of the supporting bones, the teeth are forced into a greater or lesser degree of malposition." He also noted that we can establish the long axis of growth of the crown and root as soon as the occlusal surface of the mandibular third molar is complete.¹ Important changes in the axial inclination of the mandibular third molar take place between 16 to 18 years of age when, he suggested, the roots move abruptly forward in the bone, advancing the tooth toward its adult axial position.¹

The third molar crown usually has a well calcified outline by age 15. Rothenberg² observed that the third molar cannot erupt normally and will become impacted if growth and development of its crypt is not correlated to deposition and resorption of bone at the ramus and the change and inclination of the crown is not correlated to both.

In reality, teeth neither move nor wriggle into position as was thought by Broadbent. Instead, they become gradually exposed by backward growth of the mandible which occurs through resorption of the anterior portion of the ramus and deposition of new bone along its posterior border. Kelsey³ has stated that once the enamel matrix is laid down, the size of the teeth cannot be altered to accommodate them to adjacent structures. Waldron⁴ also has published an excellent review demonstrating incisor crowding due to impacted mandibular third molars.

Similarly, every oral surgeon has removed bicuspid from 10-14 year old children receiving orthodontic therapy for correction of crowded anterior teeth. The immediate result is excellent. However, a proportion of these patients re-

turn within 8-10 years with recurrent anterior crowding due to impacted third molars and inadequate space to permit their proper entry into the arch.

INDICATIONS FOR REMOVAL

What should be done about third molars? We share the opinion of many reputable clinicians who recommend that these teeth be removed at an early asymptomatic stage.⁴⁻⁸

Third molars should only be retained if they function normally and possess a vital pulp and corresponding healthy periodontium. The possibility of retention should also be considered when (1) the third molar may serve as an abutment or an attachment; (2) the prognosis for the adjacent second molar is poor; or (3) if the tooth is asymptomatic and deeply impacted, shows no radiographic evidence

of an existing follicle, and is present in an elderly patient whose health would be jeopardized by the trauma of a surgical procedure.

Potential pathological conditions may ensue even after third molars erupt. Often these teeth become extruded. This predisposes to (1) pocket formation between the second and third molars; (2) open contact between the second and third molars with potential food impaction, pockets or dental caries; and (3) malocclusion with resulting temporomandibular joint dysfunction. Moreover, it is often difficult to perform adequate oral hygiene in the third molar region especially in the upper jaw.

HAZARDS OF RETENTION

Apart from these considerations there are several additional reasons that justi-

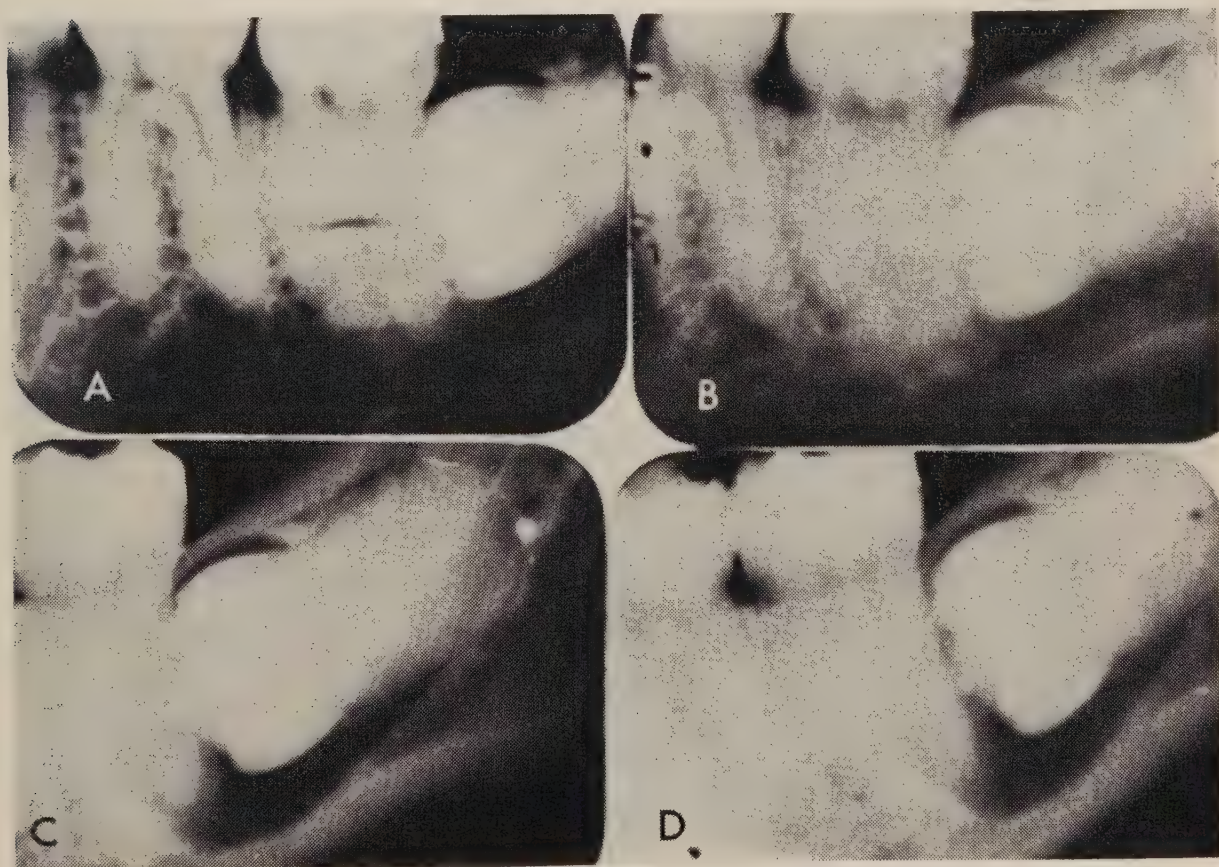


FIGURE 2 A 52 year old dentist was observing his third molars every six months. Radiographs A and B were taken eight months before C and D. In C and D a well formed dentigerous cyst has developed well past the age of odontogenesis. Removal of the third molar at this stage is difficult and may necessitate sacrificing the second molar because bone distal to this tooth does not regenerate as well at age 52 as it would at age 18-25. (Courtesy of Col. R. B. Shira.)



FIGURE 3 Prophylactic removal of the lower third molar is recommended when a radiographic appearance such as this is noted in a teen aged patient and the first and second molars appear to be intact. The operation would be a little easier if root development were slightly more advanced.

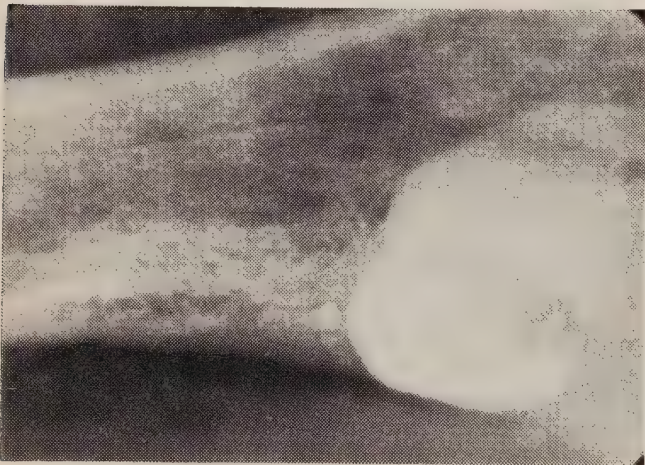


FIGURE 4 Radiograph of a 68 year old woman showing an unerupted lower third molar which continued to form cementum. The patient wore a denture over this tooth. Eventually, sufficient bone was resorbed, the crown of the tooth penetrated the mucosa and her denture could no longer be worn. Surgical removal is now a formidable task.

fy the prophylactic removal of all impacted wisdom teeth at an early age (18 to 25).

Extraction is easier when the patient is young because the membranous remnant of the dental follicle between the tooth and surrounding bone facilitates dislodgement of the tooth. We disagree, however, with those who advocate the removal of third molars when only the crown of the tooth has formed (Figure 3). We believe that removal at this stage is only warranted when these teeth interfere with the eruption of the second molar. It is not easy to remove such crowns (Figure 3) because they are generally deeply embedded. Moreover they tend to rotate like a ball in a socket when

elevators are applied. The ideal time for surgery is when the roots are two-thirds developed, thus eliminating the hazards of unusual curvature of the apical portion and of root exostosis. If the operation is postponed until later life when the dental follicle is partially or completely resorbed, the bone becomes hard, brittle and dense, and the completely formed roots are often thin, curved and tortuous. Furthermore, the roots in older patients may acquire exostosis (Figure 4) and the crown may be in direct contact with the second molar since all intervening tissue becomes resorbed.

The mandible is often small and fragile in some patients, particularly edentulous ones. Disuse may also produce resorptive changes in the third molar followed by bony repair. This may result in ankylosis between the tooth and a weak mandible. Fragility of the bone and the unusual amount of force that often must be applied in such cases are common causes of jaw fracture.

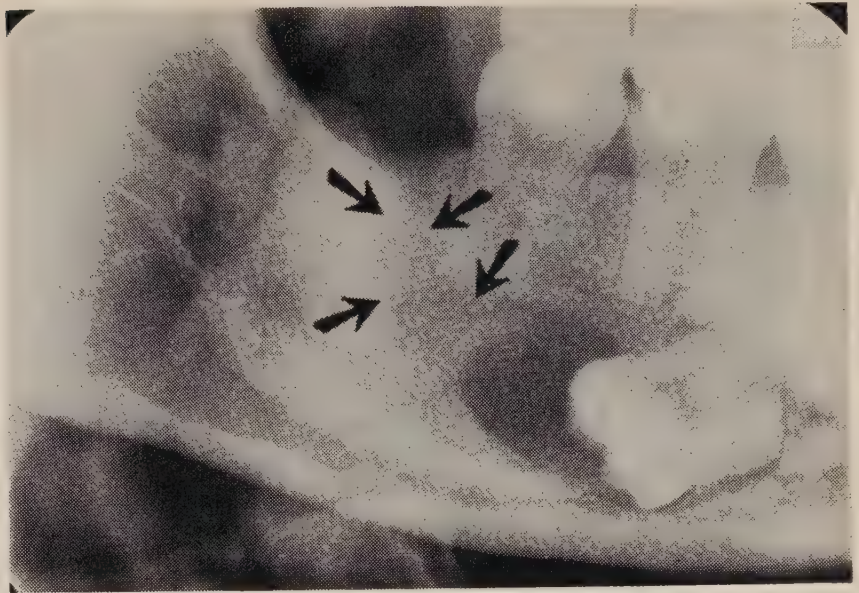
The incidence of alveolar osteitis is greater in the elderly. Many of these patients may also lose the adjacent second molar when a diminished blood supply and regenerative powers cause pocket formation which may eventually expose the bifurcation and apices.

Pericoronal infections occur frequently in association with the tissue flaps of partially erupted or impacted third molars. The associated inflammatory reactions are often severe and spread from the tissue flaps to adjacent structures. Perio-stitis, osteomyelitis, trismus and cervical lymphadenitis with peritonsillar and pharyngeal abscesses often complicate the original pericoronitis.

Neuritis or diffuse neuralgias resulting from pressure of the developing root on nerve trunks and resorption of the adjacent teeth are among the many pathological conditions common to third molars.

According to Fitzgerald,⁶ the unerupted tooth that appears to be completely embedded may have a minute fistula from the mucous membrane to the tooth (Figure 5), permitting the entrance of micro-organisms. He and others^{4,5,7-10} therefore advocate the early prophylactic removal of these teeth as well as the

FIGURE 5 An unerupted lower third molar with a dentigerous cyst in a 26 year old nurse. The tooth is displaced toward the lower border below the first molar. Arrows outline the path that the tooth travelled. The tooth and the cyst were removed by an extra-oral approach and the first and second molars were retained. Subsequent paraesthesia persisted for nine months.



removal of the partially erupted tooth within the operculum.

Another complication is the possibility

of cyst formation around the crowns of the unerupted teeth. Evidence also exists of the development of ameloblas-

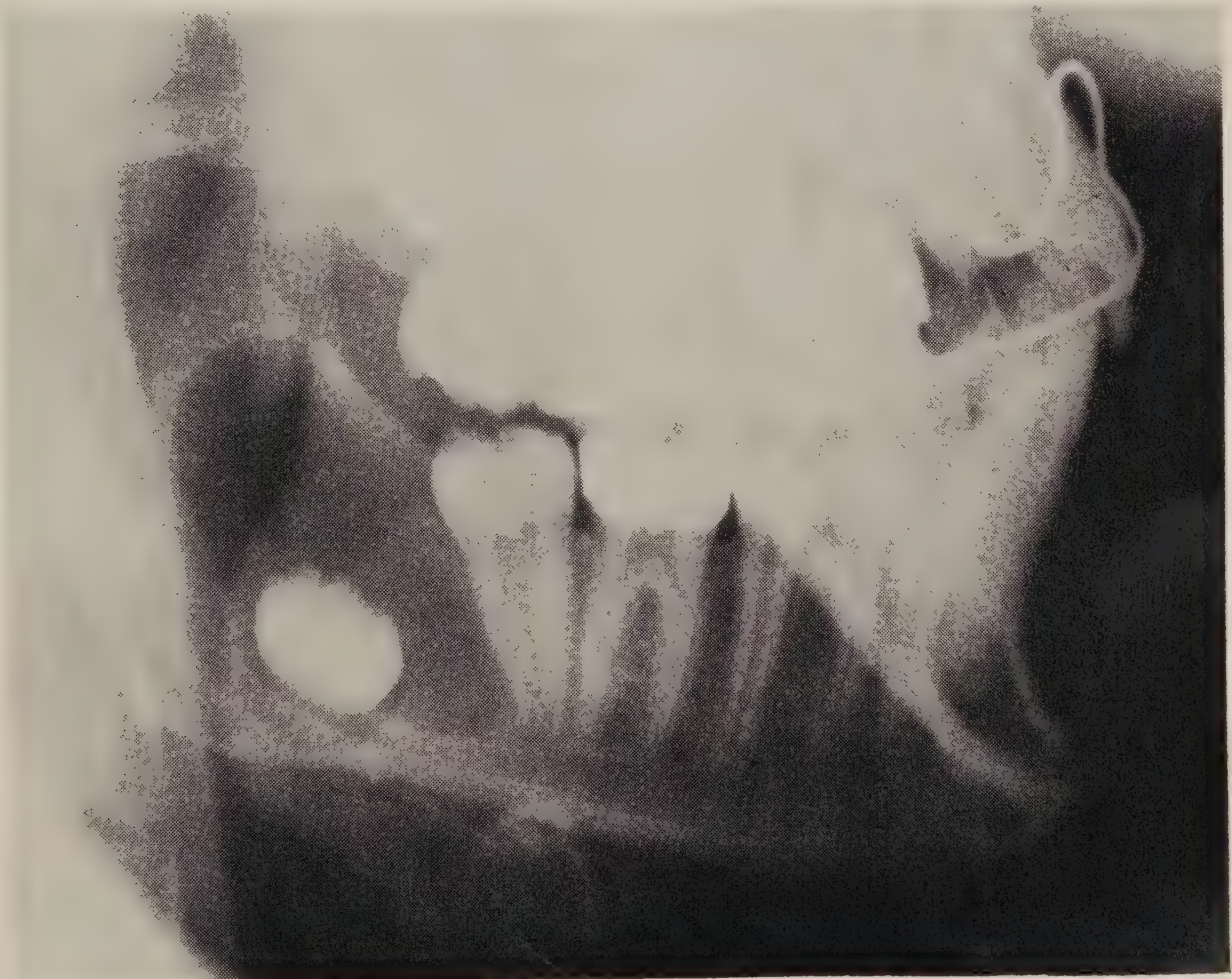


FIGURE 6 Radiograph of an apparent dentigerous cyst (actually an ameloblastoma) about the crown of a lower third molar in a 27 year old man. Although the patient had been under the care of an orthodontist for nine years, he was unaware that an ameloblastoma had formed in the ramus area displacing the third molar to the inferior border of the jaw.



FIGURE 7 This radiograph shows a large dentigerous cyst. The patient, a 60 year old man, complained of pain and slight swelling. This is another example of proliferation of epithelium after odontogenesis.

tomas from the walls of the cyst (Figure 6). Even the further proliferation into squamous cell carcinoma has been demonstrated.¹¹⁻¹³ "Every follicle around an impacted tooth can be considered a potential dentigerous cyst and since a dentigerous cyst is a potential ameloblastoma, the removal of all impacted teeth should be considered."⁵ Conklin and Stafne¹⁴ have shown that the dental follicles surrounding the crowns of these teeth frequently contain epithelial rests that may be stimulated to proliferation with the formation of dentigerous cysts (Figures 7 and 8). While the majority of dentigerous cysts probably form during odontogenesis, there is concrete evidence that they may also form later in life as a result of proliferation of the epithelium in these follicles (Figures 7-9). These cysts develop slowly and expand along the path of least resistance, often developing into large, destructive lesions before they are discovered (Figure 6).

CONCLUSIONS

While many patients go through life with retained impacted teeth and encounter none of these difficulties, a sufficient number of older people do experience complications. Therefore serious consideration should be given to the removal of asymptomatic impacted teeth during the early years when their removal is usually uncomplicated. It is the duty of the dental practitioner to give his patient



FIGURE 8 Anteroposterior radiograph showing expansion of a dentigerous cyst displacing the unerupted lower left third molar toward the condyle. Fortunately, it was possible to preserve the mandible and prevent fracture. (Chapnick, P. et al. *J. Oral Surg.* 23:531, 1965.)

early advice regarding the third molar situation in his particular mouth. From a study of growth and development, we know that this evaluation can be made early in the life of an individual. We can thereby prevent many of the pathological sequelae inherent to the prolonged retention of malposed third molars.

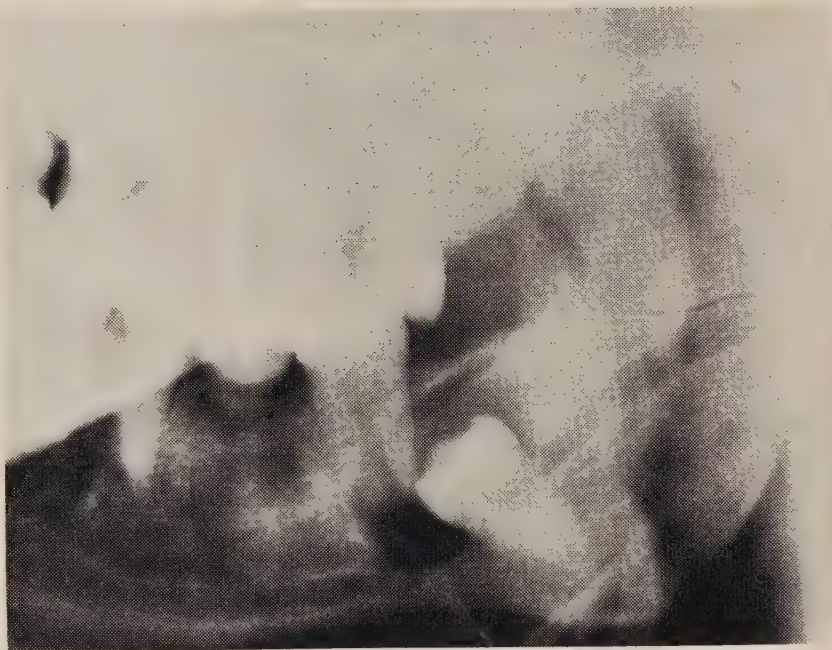


FIGURE 9 A, Bite-wing radiograph of a 40 year old patient showing an impacted lower third molar close to the crest of the ridge and adjacent to the second molar which serves as a bridge abutment. B, The same patient 18 years later. A large destructive cyst has formed forcing the third molar against the roots of the second molar. Not only is the entire bridge in jeopardy, but the mandibular neurovascular bundle is also threatened. This surgical problem would have been simplified had a prophylactic operation been performed 30 years earlier. (Courtesy of Col. R. B. Shira.)

SUMMARY

Prophylactic removal of all unerupted and impacted third molars at an early age is strongly advocated. The reasons for their removal during the late teens and early twenties as well as the few circumstances that call for their preservation are presented.

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Calculus formation and its effect on oral health

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Although the composition of calculus is known, the manner of its formation remains controversial. The epitactic concept of calcification seems applicable to calculus formation because calcification and calculus formation share many common denominators. Calculus has a detrimental effect on the periodontium but its mechanism in this respect is not fully understood. Regular periodic removal of calculus helps to prevent the onset of periodontic disease. Future preventive measures may aim at suppressing calculus formation.

■

Bien que l'on connaisse parfaitement la composition du tartre, le mécanisme de sa formation demeure sujet à controverse. Le concept épitactique de calcification semble pouvoir s'appliquer à la formation de tartre, car la calcification et la formation de tartre ont de nombreux dénominateurs communs. Les dépôts calcaires ont un effet nuisible sur le périodonte mais le mécanisme de ces réactions n'est pas parfaitement clair. L'ablation régulière des dépôts calcaires aide à prévenir les maladies périodentaires. Les mesures préventives à venir permettront peut-être de supprimer entièrement la formation du tartre.

Boucher¹ defines dental calculus as "the accretion formed upon the teeth by precipitation of calculus and magnesium salts from the saliva in the form of phosphates and carbonates, with a dental plaque of organic material serving as a nidus for formation. [Calculus is] deposited on a mucopolysaccharide matrix; possesses apatite structure; [and] contains desquamated cells, debris, and various members of the oral microbial flora, among which the filamentous organisms are often considered as essential for deposition and attachment of calculus to the teeth."

Composition.—Calculus is composed of organic and inorganic substances. Actinomyces and leptotrichia predominate in the organic component. Also present are cocci, rods, epithelial cells, leucocytes, carbohydrates, nitrogenous compounds, amino acids, mucopolysaccharide, fat, fatty acids, cholesterol, phospholipids, keratin and nucleoprotein.²⁻¹¹ The inorganic components include hydroxyapatite, brushite, magnesium whitlockite, octacalcium phosphate, monetite and calcite.^{5,12-21}

Attachment.—The attachment of dental calculus is not fully understood. Attachment may be effected by way of the enamel cuticle, minute irregularities, micro-organisms, or alterations in the

cementum such as cementum resorption.^{2,22-24} A combination of the four modes described generally exists.

Formation.—The initiation of calculus lies in the formation of the dental plaque.²⁵⁻²⁷ On tooth surfaces micro-organisms and food debris tend to adhere to the layer of salivary mucin which covers the entire surface of the mouth. Acids resulting from bacterial fermentation precipitate additional mucin, thereby starting plaque growth. More and more micro-organisms, food particles, dead cells and other substances accumulate. Thus, a matrix consisting of mucopolysaccharide, micro-organisms and debris is formed. This provides a way of holding together the mineral precipitates and a means of attachment.¹¹

Calcification entails binding of calcium ions to the carbohydrate protein complexes of the organic matrix, and the precipitation of crystalline calcium phosphate salts which harden the soft plaque. This process begins from the second to the fourteenth day after plaque formation.⁷ Calcification proceeds in various ways. It may start from isolated compact centres which grow and coalesce to form masses of calculus with laminated and granular structure.^{28,29} There may be surface mineralization with or without premineralization.⁷ Crystals may form between and on bacterial surfaces or within the organisms. Each type of crystallization appears to build up specifically structured mineralization centres.³⁰

Although the presence of micro-organisms in calculus formation and calcification is universally acknowledged, their exact function in calcification and calculus formation remains controversial.^{3,31-35}

Other factors, such as the colloidal properties of saliva,³⁶⁻³⁸ pH and carbon dioxide,^{3,11,31,35,39-42} and phosphatase^{31,34} are also believed to play a role in calculus formation.

At present, the most widely held explanation for calcification is the epitactic concept. This mechanism may also operate in calculus formation since (1) the hydroxyapatite in bone and teeth is the same as that found in calculus,¹⁰ (2) the presence of a mucopolysaccharide is common to ectopic and normal calcification,¹⁰

and (3) a marked diminution in metachromasia and of the Schiff reaction is common to both types of calcification.^{10,25,44} This theory recognizes that the concentration of calcium and phosphate ions is not high enough to warrant spontaneous precipitation, but sufficient on the other hand to support the growth of a crystal, once a crystal is formed. Calcification would occur only when there is a primary seeding of the organic matrix onto which the salt can crystallize in proper structural configuration.^{10,45}

Though not fully understood, seeding is believed to be initiated by mucopolysaccharide which chelates calcium. This chelate then acts as a nucleus for crystallization.³⁵

Localization.—Calculus is abundant in the region of the maxillary first molar and the anterior mandibular lingual anterior region.^{46,47} According to Leung,¹¹ carbon dioxide in saliva is lost immediately upon secretion. Therefore precipitation, following this loss, would necessarily occur where saliva is secreted around the foramina of the major salivary glands. Others contend that micro-organisms immediately utilize in these areas the substrates that are available in saliva as it is secreted. On the other hand, saliva may provide a favourable environment for bacterial growth in these regions.

EFFECTS ON ORAL HEALTH

Periodontic Disease.—Gingival deposits, such as calculus and plaque, constitute the most important local agent in periodontic disease.⁴⁸⁻⁵¹ Whether calculus actually initiates or follows gingival inflammation is uncertain.²⁸ However, the combined chemical, bacterial and mechanical irritation from calculus perpetuates periodontic disease.

It is widely held that calculus irritates mechanically,^{48,49,52} yet the evidence for this is rather meagre.^{53,54} Subgingival calculus is covered by a soft uncalcified plaque which cannot cause mechanical irritation. Moreover, there is evidence that the epithelial cuff can adapt itself to a rough surface as readily as to a polished one.⁵⁵

The accumulation of hard and soft deposits provides a bacteriologically favourable environment.^{56,57} Pockets without subgingival calculus are usually sterile.⁵¹ Calculus retains micro-organisms and toxins in contact with the gingiva.⁵⁵ It may also serve as an anchorage and framework for accumulation of micro-organisms.⁵²

Bacterial enzymes like protease, collagenase, hyaluronidase, chondroitinase, chondrosulphatase, haemolysins, streptokinase, desoxyribonuclease and ribonuclease may facilitate the diffusion of antigenic substances and bacterial metabolites into the gingival tissue. These, in turn, produce inflammation.^{28,51,52,56-66}

Pathogenesis of Periodontic Disease.—

When an irritant, such as calculus, causes local inflammation the immediate response is increased vascularity, oedema formation, leucocytic infiltration, cellular alteration, and proliferation. If the irritant remains, there is a loss of the keratinous layer of the gingival and subgingival epithelium.⁴⁹ The superficial cells then undergo hydropic degeneration. Microscopic breaches of the surface epithelium may occur, thereby forming an occasional minute ulcer. Consequently, the connective tissue is fully exposed to further seepage of toxins or ingress of micro-organisms.^{58,67} More inflammation results. Simultaneously, the basal layer of the sulcus epithelium is stimulated to undergo irregular proliferation so that finger-like processes extend into the underlying connective tissue. Swelling and proliferation of the gingiva provide a deeper sulcus for harbouring more calculus and thus enhance its effect.

Penetration of toxic substances occurs between the epithelial attachment and the tooth, as well as through the cellular spaces of the pocket epithelial attachment.^{36,55,68} Generally, chronic inflammation of the gingiva progresses following the course of the blood vessels, into the bone marrow and on the periodontic side of the alveolar process.⁶⁹ Only in exceptional instances does it penetrate into the periodontic membrane.

Deepening of pockets has been attributed to downgrowth of the epithelium

which might follow periodontic fibre decomposition due to inflammation or a primary cementopathy.^{55,70,71} Another theory is that epithelial strands proliferate down and bypass the attached fibre bundles, suggesting that the proliferation of the epithelial cells brings about the dissolution of fibres. It seems, however, that the deepening of the pocket in most cases can be connected with downgrowth of the calculus and the toxic effect of micro-organisms would be a decisive factor. The epithelium grows down until it is stopped by undamaged fibres.^{51,70}

Following destruction of the fibres (trans-septal, gingival and Sharpey's) the epithelium attached to the tooth proliferates apically.

The cells of the epithelial attachment derive their nourishment from the lymph of the underlying connective tissue. As a result of its alteration, the superficial layers of the epithelial attachment undergo degenerative changes and split, thereby producing the first stage of pocket formation. Consequently, more breaches occur in the pocket epithelium, which in turn leads to further destruction of fibres of the periodontic membrane, with subsequent proliferation of the epithelium along the cementum. The continuation of this process leads to eventual pocket formation. As the superficial fibres are destroyed, a compensatory formation of new fibres replaces the former.

As the inflammation continues to encroach and extend into the deeper structures, bone of the alveolar process eventually becomes involved. The fatty marrow becomes fibrous and the alveolar and supporting bone is resorbed leaving the fibres of the periodontic membrane inserted on the tooth side only. Resorption of the alveolar crest from the gingival side leads to destruction first of the supporting alveolar bone and then the lamina dura.⁶⁸ This eventually loosens the tooth.

Calculus initiates gingivitis which degenerates into periodontitis. The periodontic pockets associated with the latter contribute to tooth mobility and ultimately to tooth loss.

Calculus and Dental Caries.—The mechanisms which cause calculus or caries are independent of each other.^{38,72-76} The ap-

parent similarity of local factors stems from the fact that both calculus and caries originate from a common source, namely the bacterial plaque. Depending on the local factors (micro-organisms and substrate), the plaque will initiate caries or provide a matrix for calcification.

Loss of Teeth.—Prior to age 30 dental caries is the major cause of tooth loss; thereafter periodontic disease becomes the predominant cause. Periodontic disease is responsible for the loss of more teeth than all other causes combined. After 30, it is the cause of three to seven times more tooth loss than dental caries. Periodontic disease accounts for approximately 50 per cent of all teeth lost, as compared with about 35 per cent resulting from dental caries.

Other Effects.—Calculus deposits can also account for other abnormal conditions in the mouth. By virtue of its accumulation on teeth, calculus can favour food retention and predispose to halitosis. Because of its physical hardness and possible rough surface, calculus may also irritate the tongue and buccal mucosa.

Prevention of Periodontic Disease.—For the present, the best way to cope with calculus and periodontic disease is by regular periodic removal of accretions of calculus and adequate home care. In the future, it may become possible to prevent periodontic disease by actually inhibiting calculus formation. Many studies reveal that enzymes reduce calculus formation.^{32,45,77-79} Others report that erythromycin in the diet results in a decrease of calculus formation. Further studies may substantiate this fact.⁸⁰

CONCLUSIONS

1. The composition of calculus is known, but the manner of its formation remains controversial.

2. Micro-organisms play a definite role in calculus formation. Whether this role is active, passive or both, remains unknown.

3. The epitactic concept of calcification seems applicable to calculus formation be-

cause calcification and calculus formation have many factors in common.

4. The different elements found in calculus originate for the most part from saliva and micro-organisms.

5. Calculus has a detrimental effect on the periodontium, but its mechanism in this respect is not fully understood. Regular periodic removal of calculus helps to prevent the onset of periodontic disease. Future preventive measures may aim at suppressing calculus formation.

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Significance of caries experience in preschool children aged 3 to 5

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Six hundred and ten children aged three to five participated voluntarily in an educational and preventive dental program in Penticton, British Columbia. Over 28 per cent of the three year olds had clinically evident dental caries. By age seven more than 70 per cent had experienced tooth decay. In three year olds, caries was evenly divided between incisors and molars. Thereafter, molar caries became predominant. Incisors were less susceptible than molars, and cuspids were least susceptible to decay. Caries in the incisors at age three emerged as a potent indicator of future molar decay and one that may reflect faulty food habits and inadequate home care.

■

Six cent dix enfants de trois à cinq ans ont participé de façon volontaire à un programme d'éducation et de prévention dentaires à Penticton, en Colombie britannique. Plus de 28 pour cent des enfants de trois ans avaient des caries apparentes à l'examen clinique. Dès l'âge de sept ans, plus de 70 pour cent présentaient des caries. Chez les enfants de trois ans, les caries se rencontraient aussi nombreuses

sur les incisives que sur les molaires. Par la suite, les caries des molaires devenaient de plus en plus nombreuses. Les incisives étaient moins susceptibles que les molaires, alors que les canines étaient les dents les plus résistantes à la carie. La carie des incisives dès l'âge de trois ans indique probablement qu'il y aura plus tard une forte incidence de carie sur les molaires. On peut conclure que dans ces cas, on a affaire à des patients qui ont de mauvaises habitudes alimentaires et qui ne brossent pas suffisamment leurs dents.

British Columbia officials have compiled extensive statistics concerning the dental health of school children throughout the province¹ but we have little information about dental caries in preschool children. Unlike the 'captive audience' provided by school children, it is difficult to obtain a representative sample of preschool children. Yet it is essential to have knowledge of the progress of decay in younger children because of the accumulated and often irreparable damage displayed by children in the first grade.²

Early in 1964 we initiated a program in Penticton for all three and four year old children residing in School District 15. Free dental examinations, parental counselling, topical fluoride applications, and referrals to the family dentist were offered. The services were provided by a dental hygienist and dental assistant who were directed by the regional dental consultant.

Press, television, radio, and mailed invitations were used to contact children and parents. Priority was given to three year olds, but we estimate that 80 per cent of three year olds, 50 per cent of four year olds, and an unsolicited 20 per cent of five year olds participated during the first year. These are only estimates because it is difficult to determine the actual number of preschool children of any age resident in a school district. Our estimates were based on health unit records and grade 1 school enrolment, which totalled 281 pupils.

Six hundred and ten subjects were clinically examined with mirror and explorer under adequate light. Radiographic examinations were not performed. Only frank cavities which an explorer could penetrate were recorded. All fillings, missing teeth and cavities were charted. It was assumed that missing teeth had been extracted by a dentist. The def tooth index was assessed for each child. In this study the 'e' part of the index refers to extracted teeth.

School examination charts of 281 six year old grade 1 Penticton children show that 88.8 per cent had dental caries in 1964. Their average def rate was 5.3 for cuspids and molars only. Of these children 33.4 per cent had already lost one or more deciduous molars or cuspids.³ We now wanted to learn how dental caries progresses to such a serious extent by age six.

RESULTS

The results are depicted in Tables 1-4. The smaller number of five year olds weakens the reliability of statistics for this group as compared to the other groups. However, the results fit in well

between the figures for four and six year olds. Although the parents of these five years olds must be classed as 'interested parents,' so are the parents of the other groups. Many of the five year olds were, in fact, siblings of the three and four year olds.

In seven of the three year old children, more than 17 of the 20 deciduous teeth had experienced decay. This figure is included only to show how badly some of the three year olds were affected by dental caries.

DISCUSSION

By age three, almost 30 per cent of Penticton's children have dental caries and slightly more than 1 per cent need extractions (Table 1). About half of the teeth to be lost are incisors (Table 2). This may be attributable to early eruption and prolonged exposure of these teeth in the mouths of susceptible individuals whose diet and home care are not properly controlled by the parents.

The proportion of children requiring extractions increases to almost 4 per cent by age four and exceeds 12 per cent by age five (Table 1). The need for extractions rises to over 30 per cent at age six. At this age we begin to observe substantial evidence of premature loss of deciduous teeth.

Fifty per cent of the decay in three year olds occurs in the deciduous molars (Table 2). This proportion increases with advancing age. Thus, molar decay accounts for 70 per cent of all caries in four and five year olds. Cuspids account for about 10 per cent of decay in all three age groups. Almost 40 per cent of the decay in three year olds occurs in the incisors. However, this falls off to only 20 per cent in the four and five year olds. After age three, molars constitute the majority of deciduous teeth extracted by dentists.

An interesting point emerges from the figures for percentage of total def in Table 2 and the relative frequency figures in Table 3.

The percentage of total def for deciduous incisors drops steadily from age three to age five (Table 2). Likewise, the rela-

TABLE 1 Dental finding from 610 Penticton preschool children aged three to five.

	Age group					
	3		4		5	
Total children	359		186		65	
Caries free	255	71.03 %	79	42.5 %	19	29.2 %
With caries	104	28.9 %	107	57.5 %	46	70.8 %
Total def	609		652		315	
Average def	1.69	0.19 S.E.	3.5	0.30 S.E.	4.84	0.63 S.E.
With extractions	4	1.1 %	7	3.76 %	8	12.3 %

TABLE 2 def tooth rates in 610 Penticton preschool children aged three to five.

Tooth	Decayed			Extracted			Filled			Percentage of total def		
	3 yr.	4 yr.	5 yr.	3 yr.	4 yr.	5 yr.	3 yr.	4 yr.	5 yr.	3 yr.	4 yr.	5 yr.
Molars	267	334	134	5	17	16	37	103	74	50.7	69.6	71.1
Cuspids	65	47	23	0	0	0	4	10	7	11.3	8.7	9.5
Incisors	225	137	58	6	0	2	0	4	1	37.9	21.6	19.3
Total	557	518	215	11	17	18	41	117	82	99.9	99.9	99.9

tive frequency of combinations of caries affecting the incisors drops from 57.5 per cent at age three through 45.7 per cent at age four to 35.9 per cent at age five (Table 3). For deciduous molars the trend is in the opposite direction. Here the percentage of total def rises steadily from age three to age five (Table 2) and the relative frequency of combinations of caries affecting the molars rises from 74.9 per cent at age three through 91.5 per cent at age four to 95.5 per cent at age five (Table 3). Deciduous cuspids account for close to 10 per cent of total def at all three ages (Table 2), and occur in about 30 per cent of the children with decay at all three ages (Table 3).

At age three, decay in deciduous teeth is more evenly divided between molars and incisors than at any subsequent age. From then on the molars decay much more often, and in more individuals, than do the incisors. Thus, deciduous incisors are shown to be less susceptible to decay

than deciduous molars. The higher rate of incisor decay observed at age three is simply consistent with the longer exposure of these teeth to cariogenic factors.

Comparison of caries experience in three, four and five year old caries afflicted children (after exclusion of caries free subjects) reveals a striking uniformity in the def rates (Table 4). Differences in the means for the caries afflicted children are not significant at the 5 per cent level of confidence.

This means that a three year old child with dental caries is likely to have as many teeth affected as a five year old child with caries. The lower extraction rate at age three merely indicates that cavities are not as deep. Clearly, then, a three year old child with decay in the incisors only will very likely experience molar decay within a year or two. Thus, the real point of significance is whether or not a child has the disease at age three.

Supporting evidence is found in a comparison of def rates for six year olds in Kelowna, a fluoridated community (n=101), and Penticton, which is not fluoridated (n=98). The overall def rates (Kelowna 3.5, Penticton 5.3) reflect the expected near 40 per cent superiority in the fluoridated community. But when caries free individuals are excluded, the def rate in the remaining caries afflicted children in both cities is almost identical (Kelowna 5.0, Penticton 5.9). The fluoridated community benefits because three times as many of its children are caries free at age six years (Kelowna 30 per cent, Penticton 10 per cent). Moreover, those children that do have decay have smaller cavities. We emphasize that this applies to deciduous teeth only.

This finding may be significant in other caries studies on deciduous teeth designed to test the effectiveness of anti-cariogenic measures. The annual caries increments of subjects who already have the disease may prove very different to those who suffer their first caries attack that year.

We consider the differences in the reported success of various anticariogenic agents so great that it is meaningless for predicting a precise percentage reduction through topical treatments.^{4,5,6} Special statistical guidelines are needed for caries studies because simple comparisons do not

adequately reflect all the factors involved in caries, such as tooth morphology.⁷ Our findings suggest that an individual's previous caries experience also deserves more detailed attention in setting up experimental and control groups. Furthermore, we believe that other factors, such as level of dental treatment, may have to be balanced.

If this study is statistically sound, a true expression of caries activity in deciduous teeth of preschool children would be the proportion that are caries free. This statistic is more easily compiled than a def rate. The def rate is cumbersome and does not necessarily reflect the real state of dental health of a group. For example, an average def rate of 1.69 for three year olds is very misleading when trying to interest lay groups in dental health, particularly if more than 70 per cent of the three year olds happen to be caries free.

SUMMARY AND CONCLUSIONS

Dental findings from 610 Penticton preschool children aged three, four and five have been analysed. Over 28 per cent of the three year olds had clinically evident dental caries. This figure rose to over 57 per cent in four year olds

TABLE 3 Distribution of caries in 257 Penticton preschool children afflicted with dental caries.

Deciduous decayed teeth	n=359 three year olds			n=186 four year olds			n=65 five year olds		
	No.	%	Relative frequency	No.	%	Relative frequency	No.	%	Relative frequency
Molars only	39	10.86	37.5	50	26.88	46.7	22	33.84	47.8
Molars and incisors	10	2.78	9.6	25	13.4	23.4	7	10.76	15.2
Molars and cuspids	4	1.11	3.8	6	3.19	5.6	6	9.23	13.0
Molars, cuspids and incisors	25	6.96	24.0	17	9.13	15.8	9	13.84	19.5
Cuspids and incisors	4	1.11	3.8	0	0	0	0	0	0
Cuspids only	1	0.27	0.9	2	1.07	1.8	1	1.53	2.2
Incisors only	21	5.85	20.1	7	3.73	6.5	1	1.53	2.2
Total	104	28.94	99.7	107	57.4	99.8	46	70.73	99.9

TABLE 4 Comparison between def tooth rates of all 610 preschool children and 257 caries afflicted preschool children in Penticton.

Age	All preschool children			Caries afflicted preschool children		
	No.	def	S.E.	No.	def	S.E.
3	359	1.69	0.19	104	5.8	0.45
4	186	3.5	0.30	107	6.09	0.39
5	65	4.84	0.63	46	6.8	0.71

and exceeded 70 per cent in five year olds.

The average def tooth index rose from 1.69 at age three to 4.84 at age five.

Fifty per cent of the decay in three year olds was in the deciduous molars. This proportion rose to 70 per cent in four and five year olds. Cuspids accounted for some 10 per cent of the decay in all age groups. Incisors accounted for almost 40 per cent of the decay in the three year olds. This proportion fell to about 20 per cent in four and five year olds.

The proportion of children with prematurely missing teeth rose from 1 per cent at age three to over 12 per cent at age five. Penticton school dental records show that this proportion rises to over 30 per cent by age six. This phenomenon reinforces the contention that all children should have regular dental supervision by age three. Thereafter, conservative treatment may already be too late for some. Moreover, decay which, if untreated, would necessitate extractions at five or

six years of age can best be treated at age three or four.

At age three, decay was evenly divided between incisors and molars. Thereafter, caries predominated in the deciduous molars. Incisors were less susceptible than molars, while cuspids were least susceptible to decay.

Decay in the incisors at age three emerged as a strong indicator of further serious dental problems, one that may reflect faulty food habits and inadequate home care.

Three year olds with dental caries had almost as many teeth attacked as did five year olds who had dental caries. While age-specific extraction rates reflect a deepening of cavities in the older children, the main prognostic consideration seems to be whether or not a child has the disease, particularly by age three.

* Dr. Gray is regional dental consultant and Miss Hawk is dental hygienist, South Okanagan Health Unit.

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2. Annual Report, South Okanagan Health Unit, Province of British Columbia. 1963.
3. Idem. 1964.
4. Wellock, W. D., Maitland, A. and Brudevold, F. Caries increments, tooth discoloration and state of oral hygiene in children given single annual applications of acid phosphate-fluoride and stannous fluoride. *Arch. Oral Biol.* 10:453, 1965.
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7. Grainger, R. M. and Reid, D. B. W. Distribution of dental caries in children. *J. Dent. Res.* 33:613, 1954.

390 Queensway, Kelowna

National Veterans Week • June 11-17, 1967 will be observed as National Veterans Week in Canada. The event marks the contribution which Canadian veterans have made, both in war and in peace, during the past 100 years. Veterans organizations across the nation will schedule events locally, provincially and nationally to focus attention on Canada's veterans and their achievements as good citizens.

special contributions
articles spéciaux

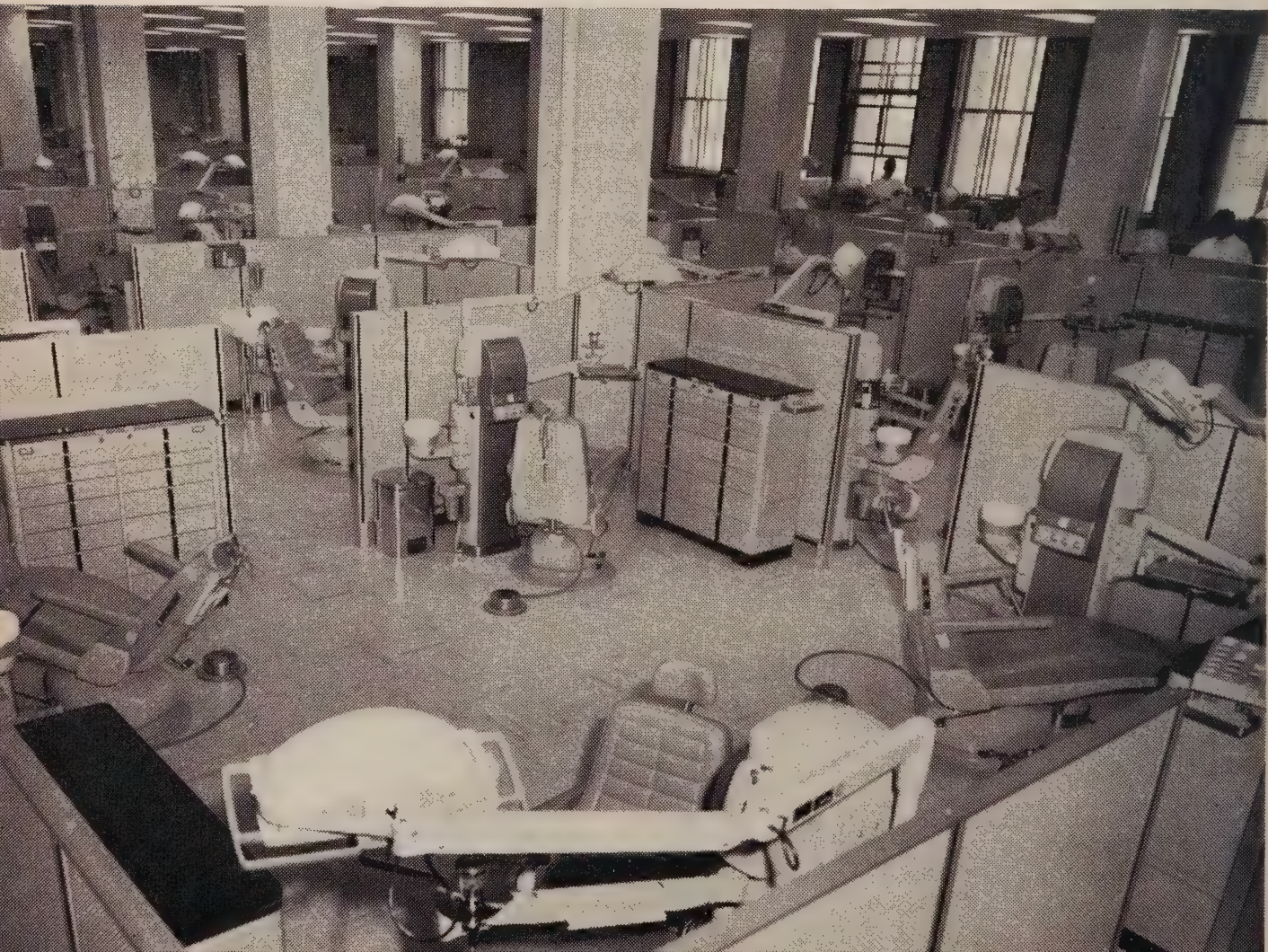
Nouveaux locaux de la Faculté dentaire de Montréal

Montreal Faculty expands

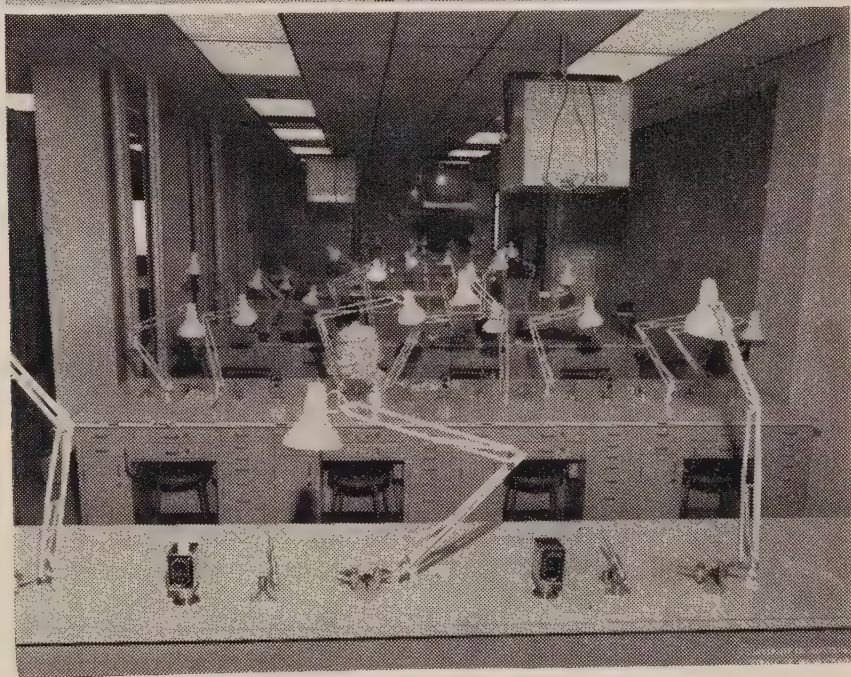
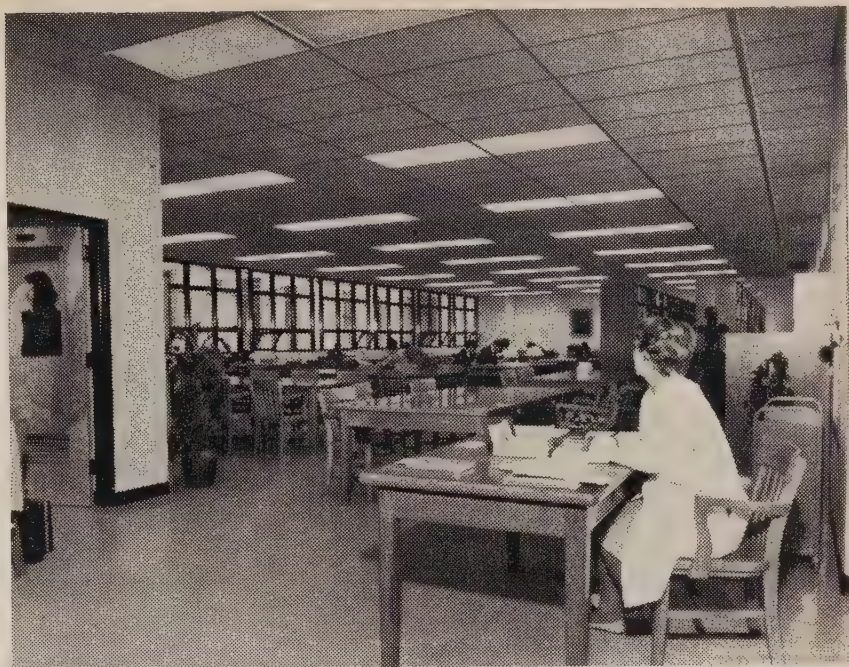
Results of a \$2.2 million expansion program were officially unveiled at the Université de Montréal Faculty of Dental Surgery November 7. The 20 months' construction program has almost doubled the school's floor area to 83,500 square feet. Included in the new facilities are a centre for growth and development studies, additional laboratories, offices for the teaching staff and a closed circuit television network.

Il y a quelques mois, étaient inaugurés les nouveaux locaux de la Faculté de chirurgie dentaire de l'Université de Montréal. Les travaux, dont le coût s'est élevé à \$2,200,000, ont duré 20 mois et ont permis de doubler la superficie qu'occupe la faculté, puisque celle-ci est passée de 42,700 pieds carrés à 83,500.

On a construit de nouveaux laboratoires de recherche et d'enseignement, un studio de télévision, une vaste salle de projection, des cliniques spécialisées et un salon pour les professeurs. La bibliothèque est maintenant quatre fois plus grande qu'elle ne l'était. La grande clinique comptant maintenant 80 fauteuils neufs munis de l'outillage le plus moderne, dépasse largement les besoins actuels de la faculté qui est prête à faire face à une augmentation considérable du nombre de ses étudiants.



En haut: la bibliothèque. Elle dispose de 125 sièges, 8,000 volumes, et elle est abonnée à 300 périodiques. C'est une des bibliothèques dentaires les plus complètes du pays. En bas: le laboratoire d'odontotechnique. Les écrans de télévision sont visibles de tous les points du laboratoire.



Above right: new dental library, one of the most comprehensive in Canada, possesses 8,000 volumes, subscribes to 300 periodicals and accommodates 125 persons. Below right: closed circuit television monitors are visible from any location within the new operative dentistry technique laboratory.

Il y a maintenant des cliniques distinctes pour la périodontie, l'endodontie, la pédo-dontie et la prothèse.

Le laboratoire d'odontotechnique peut recevoir 86 étudiants. Il est équipé de pièces à main actionnées par des turbines pouvant tourner à des vitesses de 12,000 à 20,000 T.P.M. Il y a aussi 12 téléviseurs qui permettent aux étudiants de suivre les démonstrations de leur siège même.

En face: la clinique de restauration. La clinique la plus luxueuse de toute la faculté: fauteuils motorisés, équipement moderne, appareils à haute vitesse, rien ne manque pour donner un enseignement moderne.

Facing page: ultra modern restorative clinic is equipped with power operated dental chairs and high-speed equipment.

Les nouveaux locaux consacrés à la recherche permettent d'espérer que le personnel enseignant prendra de nouvelles initiatives dans ce domaine. On a déjà mis sur pied un centre de croissance dans lequel on se propose d'étudier la santé bucco-dentaire des enfants canadiens-français de 6 à 16 ans, la calcification de leurs dents, leur croissance maxillo-faciale et squelettique. Ces mensurations seront reliées à des études sur le milieu socio-économique des enfants, de même que sur leur alimentation. La Ville de Montréal, la Commission des écoles catholiques de Montréal, et le Département d'anthropologie collaborent à cette entreprise.

Congrès national

Conférenciers spéciaux au congrès du centenaire

Les délégués au congrès du centenaire de l'Association dentaire canadienne et de celle de l'Ontario pourront entendre trois conférenciers invités à titre spécial, lors des déjeuners du lundi 15, mardi 16 et mercredi 17 mai.

Le docteur A. W. Trueman, doyen de la Faculté des Arts de l'université Western Ontario, de London, traitera de "quelques influences majeures sur la formation du Canada," au déjeuner du lundi.

Le mardi, le docteur Don W. Gullett, ancien secrétaire de l'ADC retracera l'histoire de l'art dentaire canadien en faisant revivre les souvenirs de "l'art dentaire d'hier."

Le docteur Arthur Porter, chef du Département de l'organisation scientifique du travail de l'Université de Toronto exposera sa vision personnelle d'un "plan pour l'avenir" au cours du déjeuner du mercredi.

Le Dr Trueman a été recteur de l'Université du Manitoba (1945-48) et de celle du Nouveau-Brunswick (1948-53). Il a été président de l'Office national du film du Canada (1953-57) et directeur du Conseil canadien pour l'avancement des Arts, des Humanités et des Sciences sociales (1957-65).

Le Dr Gullett est l'ancien secrétaire-registraire du Collège royal des chirurgiens-dentistes de l'Ontario (1940-56). Il a également été le secrétaire de l'Association dentaire canadienne de 1942 à 1964.

Le Dr Porter est originaire d'Ulverston, dans le Lancashire, Angleterre. Il a été professeur au Royal Military College of Science (1946-49) et à l'Imperial College

of Science and Technology (1955-58), en Angleterre. Il a été doyen de la faculté de génie de l'Université de Saskatchewan (1958-61) avant d'accepter son poste actuel à l'Université de Toronto.

Le programme de la réunion des chirurgiens buccaux

La Société canadienne des chirurgiens buccaux tiendra sa réunion annuelle du 14 au 16 mai à l'hôtel Royal York de Toronto, à l'occasion du congrès du centenaire de l'ADC et de l'ADO. Elle publie le programme suivant:

DIMANCHE, 14 MAI

- 10h00 Réunions des comités
- 1h00 Déjeuner de la SCCB
- 3h00 Réunion du bureau exécutif
- 4h00 Brève réception d'accueil dans la suite du président, Dr D. H. MacDonald

LUNDI, 15 MAI

- 9h15 Présentation d'observations cliniques par des résidents et des membres du personnel de chirurgie buccale
- 2h00 W. H. Archer, chirurgie buccale

MARDI, 16 MAI

- 9h00 Affaires de l'Association
- 2h00 H. M. Worth: le diagnostic différentiel radiologique des lésions radiotransparentes de la mâchoire
- 6h00 Réception dans la suite du président en l'honneur des membres et de leurs épouses

Pour tous renseignements, veuillez écrire à P. T. Smylski, Faculté de chirurgie dentaire, Université de Toronto, 124 rue Edward, Toronto 2, Ontario.

Réunion des pédodontistes le 13 mai

Le programme de la réunion annuelle de 1967 de la Société canadienne de pédodontie portera sur les connaissances les plus récentes en matière de traitements pulpaires, de croissance et de développe-

ment, de diagnostic et de mesures préventives, ainsi que du maintien de l'espace. Organisée par le Chapitre ontarien de la SCP, la réunion est prévue pour le samedi 13 mai à l'hôtel Royal York de Toronto. Les conférenciers seront les docteurs R. L. Scott, de Brantford, Ontario, F. Pulver, B. Hemrend et Norman Levine, de Toronto.

Programme des réunions des dentistes de l'hygiène publique

Le Conseil de l'hygiène publique dentaire de l'Ontario tiendra sa réunion annuelle à 8h00 du matin le lundi 15 mai, dans l'Ontario Room du Royal York Hotel, à Toronto. Le conférencier sera le Dr R. A. Connor, chef de la Division de l'hygiène dentaire du Ministère de la Santé nationale et du bien-être social, d'Ottawa. Sa conférence sera intitulée "Vous souvenez-vous de l'assurance santé dentaire?"

La Société canadienne des dentistes de l'hygiène publique tiendra sa réunion annuelle à l'occasion du congrès du centenaire de l'ADC et de l'ADO, les 16 et 17 mai, à l'hôtel Royal York de Toronto. Elle publie le programme suivant:

MARDI, 16 MAI

2h30 Affaires de la société

MERCREDI, 17 MAI

9h00 K. C. Charron, sous-ministre de la santé de l'Ontario: L'art dentaire et l'hygiène publique en Ontario

Le programme de la réunion des endodontistes

L'Académie canadienne d'endodontie tiendra sa réunion annuelle les 15 et 16 mai à l'hôtel Royal York de Toronto, à l'occasion du congrès du centenaire de l'ADC et de l'ADO. Elle publie le programme suivant:

LUNDI, 15 MAI

8h00 Inscription

9h25 E. M. Madlener, de Toronto: l'efficacité des divers médicaments employés dans le traitement des canaux radiculaires

10h30 J. I. Ingle, doyen de la faculté dentaire de l'université Southern California, Los Angeles: le diagnostic différentiel de la douleur buccale et péri-buccale

2h00 W. D. Cavanagh, de Toronto: l'endodontie et les couronnes et ponts

3h15 J. I. Ingle: les aspects périodontiques et endodontiques du traitement de restauration

MARDI, 16 MAI

9h00 N. S. Taichman, de Toronto: le mécanisme de la destruction tissulaire dans l'inflammation aiguë

10h00 M. A. Listgarten, de Toronto: ultrastructure du tissu conjonctif et en particulier de la pulpe et du ligament alvéolo-dentaire

11h15 H. G. Poyton, de Toronto: maladies locales et générales affectant l'os périapical—aspect radiographique

2h00 N. S. Taichman: la réaction de l'hôte à l'infection bactérienne

3h45 Affaires de l'Académie

Pour tous renseignements complémentaires, écrire à I. A. Arshawsky, 566A Yonge Street, Toronto, Ontario.

L'Association

Le président Coupland propose un bureau de l'ADC à Ottawa

Bien que ce soit l'assurance médicale qui retienne l'attention actuellement, Ottawa prépare d'autres services de santé, y compris l'assurance dentaire. C'est ce qu'a déclaré aux dentistes de Toronto le Dr Coupland, président de l'ADC, lors de la réunion annuelle d'hiver du Toronto Academy of Dentistry.

Les vues de l'Association sur les lois actuelles et celles qui se préparent reçoivent toute l'attention des hommes politiques du gouvernement et de l'opposition, ainsi que des fonctionnaires qui conseillent le gouvernement, a déclaré le Dr Coupland. Mais l'ADC pourrait agir encore plus efficacement si elle possédait un bureau à Ottawa et si son secrétaire était plus aidé et pouvait se libérer des tâches administratives courantes.

Le Dr Coupland a rappelé à son auditoire que la Commission Hall s'était prononcée en faveur de cliniques dentaires pour enfants, confiées à des auxiliaires et à des dentistes salariés. Ottawa avait d'abord considéré cette idée, mais le ministère de la Santé nationale et du bien-être social accepte maintenant la position de l'ADC, voulant qu'une enquête approfondie sur les auxiliaires et la productivité dentaires ait lieu avant l'adoption de toute mesure. Ottawa a consulté l'ADC à propos de la tenue de cette enquête, a dit le Dr Coupland.

Cette expérience, à laquelle s'ajoute le traitement inégal que représente le projet de loi sur l'assurance médicale (C-227), renforce le besoin d'une association nationale puissante pour protéger les intérêts des dentistes. Nous avons besoin, a dit le président, de responsables bien au courant, disposant de contacts établis et de bonnes sources d'information.

Canada

En Saskatchewan, la CCF demande une assurance dentaire financée par l'impôt

La Saskatchewan Cooperative Commonwealth Federation, le groupement provincial du Nouveau Parti Démocratique, réclame une assurance dentaire financée au moyen de l'impôt pour la province centrale des Prairies.

Une résolution à cet effet a été inscrite dans le programme du parti, en vue des prochaines élections provinciales que l'on prévoit pour le printemps. La résolution a été adoptée le 19 novembre, lors du 31ème congrès annuel du parti, à Regina.

Le document déclare que la réalisation du programme pourrait demander une dizaine d'années, à cause du manque chronique de dentistes en Saskatchewan.

Le programme couvrira d'abord les enfants les plus jeunes, mais il sera étendu plus tard à tous les enfants d'âge pré-scolaire et scolaire, jusqu'à 18 ans.

Le programme utiliserait pleinement les installations dentaires existantes, et en particulier les cabinets privés. La responsabilité des soins dentaires pour les familles et les enfants non nécessiteux serait laissée à l'individu, à la famille, et aux agences privées et volontaires. Les fonds du gouvernement ne seraient utilisés que pour subvenir aux besoins dentaires des nécessiteux et de ceux qui sont 'nécessiteux du point de vue dentaire.'

Des avantages fiscaux et autres seraient prévus pour encourager les parents à payer une assurance dentaire pour leurs enfants. D'autres mesures pourraient être adoptées pour encourager les agences d'assurance à offrir des régimes individuels et familiaux.

Les municipalités intéressées seraient encouragées à fluorer leur service d'eau au moyen de subventions de leur état ou du gouvernement fédéral, pour acheter l'équipement et employer le personnel nécessaire.

Le programme de l'ADA demande la création de projets pilotes, probablement cette année, pour obtenir plus de renseignements sur les besoins en personnel, l'administration et le rôle des régimes d'assurance privés.

Chronique internationale

L'ADA adopte un programme pour les enfants

Lors de sa réunion annuelle (14-17 novembre), l'American Dental Association a massivement approuvé le programme d'assurance dentaire pour les enfants, préparé par les bureaux de l'ADA. Ce programme a été mis au point à la suite d'une directive adoptée lors de la réunion annuelle de l'ADA de 1965.

Le but du programme de l'ADA est de faire bénéficier tous les enfants américains, et en particulier ceux qui sont les moins fortunés, de l'éducation en hygiène dentaire et de soins dentaires complets, y compris les soins préventifs. Le pro-

Un rapport sur la formation d'auxiliaires en G.-B.

"... Il est possible de former et d'employer sous un contrôle approprié, des auxiliaires dentaires qui peuvent accomplir, dans le cadre des fonctions limitées qui leur sont assignées, un travail de grande valeur, surtout chez les jeunes enfants." Telle est la conclusion du rapport final du General Dental Council (l'organisme de réglementation dentaire d'Angleterre) sur l'expérience qui a été faite d'entraîner des auxiliaires pour les services dentaires scolaires.

Cette étude avait été effectuée à la suite d'une directive du Conseil privé d'Angleterre, qui demanda au GDC en 1957 de procéder à cette expérience. Le

General Dental Council devait examiner s'il était possible d'entraîner des auxiliaires dentaires à obturer et à extraire des dents temporaires, afin de les employer dans les services dentaires scolaires.

Le rapport final du GDC souligne qu'il appartient au Conseil privé de juger de l'utilité économique des auxiliaires dentaires et de décider si le GDC doit ou non établir légalement des 'travailleurs dentaires auxiliaires' conformément à la loi anglaise de 1957 sur la profession dentaire.

Le rapport met l'accent sur les points suivants: (1) l'auxiliaire doit travailler sous la direction d'un dentiste diplômé qui a examiné le patient et a prescrit le traitement; (2) le dentiste doit être à portée de voix, en personne, et non par liaison téléphonique, lorsque l'auxiliaire dispense un traitement autre qu'une prophylaxie ou une application topique de fluor; (3) le dentiste lui-même doit examiner et renvoyer le patient lorsque le traitement qu'il a prescrit est achevé.

Programme provisoire du Congrès mondial de la FDI

La Fédération dentaire internationale vient de publier le programme provisoire du 14ème Congrès mondial, qui aura lieu du 7 au 13 juillet 1967, au Centre national des Industries et des Techniques (CNIT), à Paris.

VENDREDI, 7 JUILLET

Matinée Cérémonie inaugurale
Après-midi Expositions commerciales, salon artistique, exposition historique, exposition d'hygiène buccale

SAMEDI, 8 JUILLET

Matinée Séance scientifique: chirurgie buccale
Après-midi Réunion internationale de l'ARPA: périodontie
Soirée Opéra de Paris

DIMANCHE, 9 JUILLET

Matinée Séance scientifique: chirurgie buccale, prosthodontie
Après-midi Séance scientifique: prosthodontie, thérapeutique

LUNDI, 10 JUILLET

Matinée Séance scientifique: dentisterie opératoire
Après-midi Séance scientifique: dentisterie opératoire
Soirée Concert à la Sainte Chapelle

MARDI, 11 JUILLET

Matinée Séance scientifique: recherche dentaire
Après-midi Réunion de l'ORCA: recherches sur le fluor et la carie
Soirée Banquet de la FDI à Chantilly

MERCREDI, 12 JUILLET

Matinée Session scientifique: orthodontie, endodontie
Après-midi Session scientifique: les opérations dentaires avec anesthésie générale
Soirée Music Hall

Le programme prévoit également une conférence mondiale sur l'éducation en hygiène dentaire, des discussions d'experts, des déjeuners de travail et un festival international du film dentaire.

Le congrès s'accompagnera de réceptions officielles, de banquets, de soirées à l'Opéra, au théâtre et au concert, de visites de musées, d'excursions et de diverses promenades.

Il est recommandé d'effectuer les réservations assez tôt, soit auprès de l'hôtel de votre choix, soit par l'intermédiaire d'une agence de voyage.

Les frais d'inscription augmenteront le 1er janvier 1967. Les formules d'inscription jointes au numéro d'octobre 1966 du Bulletin de la FDI devraient donc être adressées sans retard à M. J. Charon, secrétaire général, 14ème Congrès dentaire international, 22 avenue de Villiers, Paris 17ème, France.

Réunion des pathologistes buccaux en avril à Miami

Les dentistes canadiens sont invités à assister à la réunion et au séminaire annuels de l'American Academy of Oral Pathology, qui auront lieu du 5 au 9 avril 1967 à Miami Beach. Le séminaire de cette année, intitulé "Dermatopathologie" sera dirigé par le Dr Robert Goltz, de l'université du Colorado. Pour tous renseignements, écrire à M. S. M. Standish, secrétaire, School of Dentistry, Indiana University, Indianapolis 2, Indiana 46202, USA.

Réunion au Liban à l'occasion du centenaire de l'U. de Beyrouth

L'assemblée médicale du Moyen-Orient organisera un congrès en mai prochain,

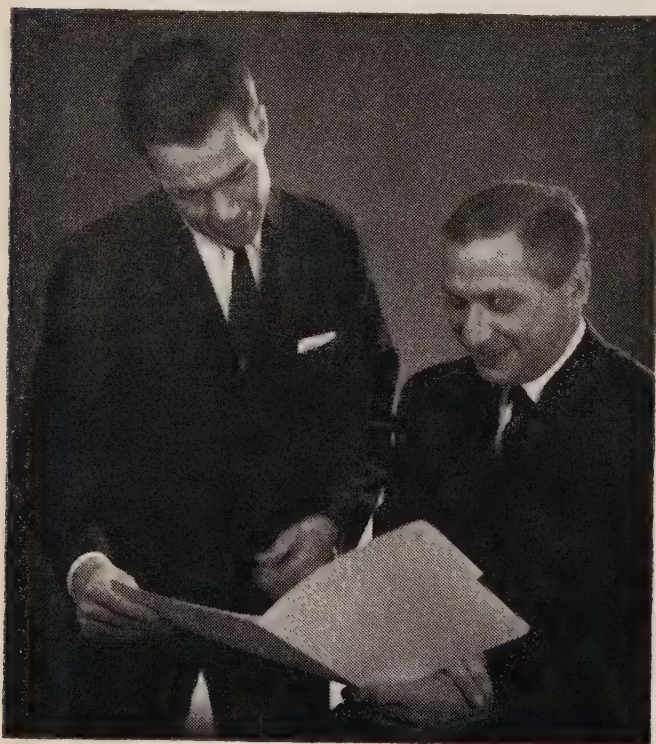
à Beyrouth, pour célébrer le centenaire de l'université américaine de Beyrouth. La section dentaire de l'assemblée se joindra au Collège international des chirurgiens dentistes pour préparer à cette occasion une réunion spéciale de trois jours, du 11 au 13 mai. Les dentistes canadiens qui désireraient assister à cette réunion, ou y prononcer une conférence sont invités à écrire à Cedric Haddad, président, Section dentaire de l'Assemblée médicale du Moyen-Orient, Rue Sadat, Ras-Beyrouth, Liban.

Organismes dentaires

Augmentation des droits de l'Association de Nouvelle-Ecosse

Lors de sa réunion annuelle qui a eu lieu en septembre 1966, l'Association dentaire de Nouvelle-Ecosse a décidé de relever sa cotisation de \$20. La cotisation sera donc de \$85 à partir du 1er juillet.

L'augmentation a été décidée pour deux



L'Académie canadienne des sciences dentaires vient de changer son président. Le Dr Claude Madore, de Montréal, dirigera ses destinées pour le prochain terme. Sur la photo nous voyons à gauche, le Dr Albéric Guay, de Trois-Rivières, président sortant de charge et à droite, le Dr Claude Madore, nouveau président.

raisons: (1) le coût des services de l'ADNE nécessite un accroissement de son revenu, et (2) l'Association désire augmenter sa contribution à l'Association dentaire canadienne en même temps que les autres membres corporatifs provinciaux.

Le nouveau bureau de l'Association des assistantes dentaires

Mlle Joan Green, de Montréal, a été élue à la présidence de l'Association canadienne des infirmières et assistantes dentaires pour l'année 1966-67. Elle succède à Mlle Penny Waite de Saskatoon.

La première vice-présidente est Mme Margaret Biswanger de Vancouver. La deuxième vice-présidente est Mme Mollie Fader d'Ottawa. Mlle Marion Burton de Saskatoon devient secrétaire et Mlle Mary Csonka d'Edmonton, trésorière.

Réunion des chirurgiens buccaux

L'Association des spécialistes en chirurgie buccale du Québec tiendra une réunion le mercredi, 22 février, à 3 h 00 de l'après-midi. Le docteur F. A. Henny, chef de la division de chirurgie buccale au Henry Ford Hospital à Détroit, discutera les sujets suivants: "Diagnostic différentiel des douleurs faciales" et "Le traitement des désordres du joint temporomandibulaire."

Pour renseignements supplémentaires, communiquer avec W. B. Donohue, suite 513, 1414 rue Drummond, Montréal.

Facultés dentaires

Le Dr Bentley à l'Université McGill

Le docteur K. C. Bentley vient d'accepter une chaire au Département de chirurgie buccale de l'Université McGill (Montréal).

Né à Montréal, le docteur Bentley a fait ses études à l'Université McGill où il a obtenu son diplôme de dentiste en 1958 et son diplôme de médecin en 1962. Après avoir été interne et résident en chirurgie générale à l'Hôpital Général de Montréal,

il a reçu en 1964 une bourse de l'Association dentaire canadienne pour poursuivre ses études de chirurgie buccale au Bellevue Hospital, à New York.

Economie

Le revenu des dentistes en 1964: 4ème rang

Un rapport du Ministère du revenu national concernant l'impôt sur le revenu des particuliers pour l'année 1964, révèle que les médecins et les chirurgiens arrivent encore une fois en tête des professions libérales avec un revenu moyen de \$21,474; une augmentation de \$2,041 par rapport à l'année précédente.

Les avocats occupent la deuxième place avec une moyenne de \$17,282; les ingénieurs et les architectes la troisième avec \$16,801.

Les dentistes se classent au quatrième rang avec \$14,909, devant les comptables qui atteignent \$13,021.

Syndicat professionnel des chirurgiens buccaux du Québec

L'Association des chirurgiens buccaux du Québec a été légalement constituée en syndicat professionnel par le Secrétaire de la province de Québec. D'après la Gazette officielle de Québec, la constitution légale daterait du 27 juin 1966.

La formation de ce syndicat accompagne la création de l'Association syndicale professionnelle des dentistes du Québec, comme nous l'avons annoncé dans le numéro de novembre du Journal (p. 676).

Alberta: un régime d'assurance dentaire est prévu pour juillet '67

La Société d'assurance dentaire de l'Alberta espère être en mesure d'offrir un régime d'assurance collective à partir de juillet 1967. La société a commencé à fonctionner en juillet 1966 et l'Association dentaire de l'Alberta lui a octroyé un crédit de \$25,000 pour la préparation d'un programme destiné au public.

L'assurance dentaire collective est en progrès

On apprend de Colombie britannique, où les tôleurs ont leur assurance dentaire depuis le mois de juillet de l'année dernière, que les syndicats des débardeurs et des charpentiers ont voté des crédits pour acquérir un régime semblable, et qu'ils sont en train de le négocier.

Au Nouveau-Brunswick, la Maritime Hospital Service Association a préparé un régime d'assurance dentaire qu'elle espérait mettre en vigueur le 1er novembre 1966, après avoir rencontré les représentants des dentistes. Il n'y a pas de société d'assurance dentaire au Nouveau-Brunswick.

Le gouvernement de la Nouvelle-Ecosse s'intéresse à un régime d'assistance dentaire pour les enfants et étudie actuellement un projet soumis par les dentistes.

Offre du CRCDO à la ville de Toronto sur l'assistance dentaire

Le Collège royal des chirurgiens-dentistes de l'Ontario a offert à la ville de Toronto d'assurer les soins dentaires des personnes qui bénéficient de l'assistance sociale au coût de 90 cents par personne et par mois. Le programme comprendrait les examens buccaux, les extractions, les obturations, les radiographies, les applications topiques de fluor, mais ne comprendrait pas les services d'orthodontie, les couronnes, les ponts, ni les prothèses. Les soins de prothèse seraient inclus dès qu'une loi provinciale s'appuyant sur le Régime d'assistance du Canada permettrait de la faire.

Lors de sa réunion du 20 octobre, le comité de la ville pour l'assistance sociale a recommandé un programme de soins dentaires plus important que celui de CRCDO. Un conseiller proposa d'étendre la gratuité des soins dentaires aux petits salariés. Une résolution adverse, visant à limiter la gratuité des soins dentaires aux personnes sous assistance sociale, fut abandonnée (sans être mise aux voix). Par la suite, le comité exécutif de la ville a décidé de suspendre sa décision sur l'offre du CRCDO.

Actuellement, l'assistance sociale de la ville n'offre que des soins dentaires limi-

tés dans les cliniques externes des hôpitaux et dans les cabinets dentaires.

Hygiène publique

Création d'une société des dentistes hygiénistes

Un organisme groupant les dentistes spécialisés en hygiène publique de tout le Canada vient d'être formé. Sous le nom de Société canadienne des dentistes de l'hygiène publique, l'organisme a été officiellement établi le 15 juin, lors d'une réunion à Halifax.

Le docteur R. A. Connor, dentiste consultant, du ministère de la Santé nationale et du bien-être, a été choisi comme président de la société. Le Dr J. J. Marineau, de Chomedey Est, P. Québec, est président-élu. Le Dr J. M. Conchie, de Cloverdale, Colombie britannique, est secrétaire et le Dr T. J. Gavriloff, d'Edmonton, trésorier.

La société tiendra une réunion lors du congrès national de l'ADC à Toronto, en mai 1967.

Franc succès d'une clinique dentaire pilote dans une région rurale du Manitoba

Le manque de dentistes a atteint un degré critique dans de nombreuses régions du Manitoba où la population augmente de façon continue et devient plus consciente de la nécessité d'une bonne santé dentaire.

Soucieuses de remédier à la situation, la section dentaire du ministère de la santé du Manitoba et les autorités de la région de McGregor ont installé l'été dernier, pendant six semaines, une clinique pilote qui pourrait bien révolutionner l'organisation des services dentaires dans les régions rurales de la province.

Les autorités locales ont fourni les locaux, un immeuble vide de deux étages situé sur le terrain de l'Hôpital Général de McGregor. Le rez-de-chaussée fut transformé en clinique dentaire de quatre fauteuils, tandis que le personnel mascu-

lin était logé à l'étage. La Faculté d'art dentaire de l'Université du Manitoba prêta l'équipement dentaire.

Le personnel se composait d'étudiants dentaires de quatrième année, d'une étudiante en hygiène dentaire et de deux assistantes débutantes sous la direction d'un professeur de l'Université du Manitoba.

Les volontaires de l'endroit vinrent seconder ce personnel, comme réceptionnistes et assistantes supplémentaires.

L'ouverture de la clinique fut précédée d'une campagne d'information intense, dirigée par le dentiste consultant régional. Le succès de la clinique dépassa toutes les prévisions, au point qu'au terme des six semaines, la liste d'attente comptait 230 noms. Le hasard voulut que deux dentistes se soient établis à Portage la Prairie au cours de cette période, ce qui permit au personnel de la clinique d'adresser les patients à ces dentistes.

La clinique dispensait des soins dentaires complets, y compris des examens radiologiques, des traitements prophylactiques et des applications topiques de fluor. Elle était ouverte à tous les habitants de la municipalité et le prix des traitements était conforme à l'échelle d'honoraires normale tant pour les adultes que pour les enfants.

Fluoration

Acceptée à Edmonton, refusée à Calgary

Edmonton et sept autres municipalités albertaines viennent grossir les rangs des villes canadiennes qui disposent d'eau fluorée. Tel est le résultat des référendums qui ont eu lieu en octobre sur la fluoration, les premiers en Alberta depuis que le parlement a modifié la loi provinciale sur la santé publique, en avril dernier. Depuis lors, la majorité simple suffit pour faire adopter la fluoration, alors qu'il fallait auparavant une majorité des deux tiers. Un autre amendement autorise tout service de santé ou tout service municipal de santé à distribuer gratuitement des comprimés de fluor à tout habitant qui en fait la demande et possède une ordon-

nance de son dentiste ou de son médecin.

Les villes de Drumheller, de Cardston, de Drayton Valley, de Elk Point, de Hanna, de Saint-Paul et de Vegreville se sont prononcées en faveur de la fluoration, tandis que Calgary, Camrose, Claresholm, High Prairie et Ponoka ont voté contre.

Grâce aux projets de fluoration ainsi approuvés, le nombre des Canadiens bénéficiant de cette mesure d'hygiène publique dépassera largement les cinq millions, répartis en près de 300 municipalités. Les grands centres qui bénéficient actuellement de la fluoration sont Toronto, Winnipeg, Ottawa, Windsor, Laval, Halifax et Saskatoon.

Edmonton, capitale de l'Alberta, se classe au quatrième rang des villes canadiennes qui ont adopté la fluoration, derrière Toronto, Winnipeg et Ottawa. Cette ville est le noyau d'une zone urbaine de 400,000 âmes.

Le gouvernement de la Nouvelle-Ecosse subventionnera la fluoration

Quatre municipalités de la Nouvelle-Ecosse seraient en train d'acquérir ou d'installer des appareils pour fluorer leur eau. Près de 200,000 habitants de la province consomment déjà de l'eau fluorée (à Halifax, Dartmouth, Kentville, Antigonish, Windsor et Wolfville).

Le gouvernement provincial a offert de payer la moitié du coût de l'installation, jusqu'à concurrence de \$5,000, ce qui devrait encourager d'autres municipalités à suivre l'exemple des premières.

Recherches

La Conférence canadienne sur la recherche

La quatrième Conférence canadienne sur la recherche dentaire a réuni du 3 au 5

octobre, à Clear Lake, dans le Parc national de Riding Mountain (Manitoba), 75 chercheurs dentaires canadiens. Les participants à cette réunion canadienne sur la recherche dentaire n'avaient jamais été aussi nombreux.

Une partie de la conférence fut consacrée à étudier les besoins futurs de la recherche dentaire, ainsi que la formation du personnel nécessaire aux facultés dentaires actuelles et futures du Canada.

Toutes les facultés dentaires du Canada, le Conseil pour la recherche de l'ADC et le Comité adjoint pour la recherche dentaire du Conseil national de la recherche, s'y trouvaient représentés. Une fois de plus, l'aide financière était offerte par le Conseil national de la recherche et par un don de la compagnie Procter and Gamble, transmis par l'intermédiaire de l'ADC. Le comité d'organisation de la conférence était présidé par le Dr J. F. Cleall, de la Faculté de dentisterie de l'Université du Manitoba.

La Faculté de Toronto se dote du plus puissant ordinateur au monde consacré à la recherche dentaire

Un nouvel ordinateur électronique, qui vient d'être installé à la Division de la Recherche dentaire de la Faculté dentaire de l'Université de Toronto, permettra au Canada de se classer parmi les premières nations en recherche dentaire. L'appareil électronique, qui porte le nom énigmatique de PDP-8 et qui coûte \$83,000, sera relié par des lignes téléphoniques à l'ordinateur IBM 7094 de l'Institut de l'informatique de l'université. PDP-8 sera au service de la recherche dentaire de la faculté de Toronto. Il servira aussi à traiter les données de l'index national de l'hygiène dentaire du Canada et d'une étude sur l'épidémiologie dentaire, pour l'Organisation mondiale de la santé. PDP-8 représente la plus puissante installation électronique au monde qui soit exclusivement consacrée à la recherche dentaire.

National Convention

Three Special Luncheon Speakers at Centennial Convention

Three special speakers will address delegates at the Monday, Tuesday and Wednesday luncheons (May 15, 16 and 17) of the centennial convention of the Canadian and Ontario Dental Associations in Toronto.

A. W. Trueman, dean of the University College of Arts at the University of Western Ontario, London, will lead off at the Monday luncheon with his views of "Some major influences on the making of Canada."

On Tuesday former CDA Secretary Don W. Gullett will recreate the heritage of Canadian dentistry when he describes nostalgic memories of "Dentistry of yesterday."

Arthur Porter, head of the Department of Industrial Engineering at the University of Toronto, will complete the series at the Wednesday luncheon with his personal blueprint of "A pattern for the future."

Dr. Trueman has served as president of the Universities of Manitoba (1945-48) and New Brunswick (1948-53). He was chairman of the National Film Board of Canada (1953-57) and director of the Canada Council for the Encouragement of the Arts, Humanities and Social Sciences (1957-65).

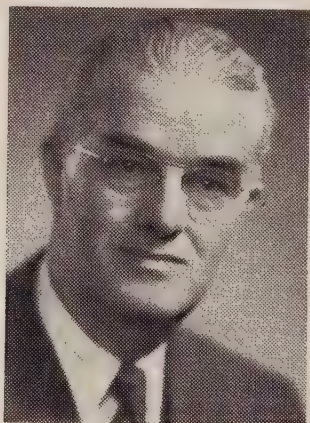
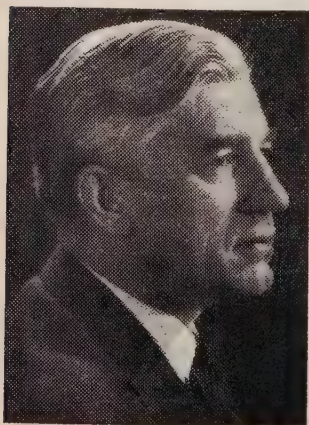
Dr. Gullett is the well known former registrar-secretary of the Royal College of Dental Surgeons of Ontario (1940-56). He also served as secretary of the Canadian Dental Association from 1942 to 1964.

Dr. Porter is a native of Ulverston in Lancashire, England. He has held professorial appointments at the Royal Military College of Science (1946-49) and the Imperial College of Science and Technology (1955-58), both in England. He was dean of engineering at the University of Saskatchewan (1958-61) prior to accepting his present position at the University of Toronto.

Dentistry for Children Group to Meet May 13

Delegates to the 1967 annual meeting of the Canadian Society of Dentistry for Children will hear the latest information on pulp therapy for deciduous teeth, growth and development, diagnostic and preventive measures, and space management. Organized by the Ontario Chapter of CSDC, the meeting is slated for Saturday May 13 at Toronto's Royal York Hotel. R. L. Scott, Brantford, Ontario, and F. Pulver, B. Hemrend, and Norman Levine, all of Toronto, will be the clinical lecturers.

A. W. Trueman (l.), D. W. Gullett (c.) and Arthur Porter (r.).



Dr. Hillenbrand, ADA Secretary, to Address Centennial Convention

American Dental Association Secretary Harold Hillenbrand will be the featured speaker at this year's CDA presentation on socio-economic aspects of dentistry. Such presentations are an annual event at CDA national conventions.



Harold Hillenbrand

Dr. Hillenbrand is scheduled to speak at 2.30 p.m. on Tuesday May 15. Subject of his address will be the Children's Dental Program recently adopted by the American Dental Association.

Oral Surgeons Set Three-Day Program

The Canadian Society of Oral Surgeons will hold its annual scientific meeting in conjunction with the CDA-ODA centennial convention at Toronto's Royal York Hotel May 14-16. The following program has been announced:

SUNDAY, MAY 14

- 10:00 Committee meetings
- 1:00 CSOS Luncheon
- 3:00 Executive meeting
- 4:00 Hospitality hour in the president's suite (D. H. MacDonald)

MONDAY, MAY 15

- 9:15 Case reports presented by the residents and staff, Oral Surgery Division, Toronto General Hospital.
- 2:00 W. H. Archer: Practical oral surgery

TUESDAY, MAY 16

- 9:00 Business meeting
- 2:00 H. M. Worth: Differential radiological diagnosis of radiolucent lesions of the jaws
- 6:00 Reception and hospitality in the president's suite for members and wives

Further information may be obtained from P. T. Smylski, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

Endodontists Announce Centennial Program Details

The Canadian Academy of Endodontics will hold its annual scientific meeting in conjunction with the CDA-ODA centennial convention at Toronto's Royal York Hotel May 15-16. The following program has been announced:

MONDAY, MAY 15

- 8:00 Registration
- 9:25 E. M. Madlener, Toronto: Effectiveness of various drugs used in root canal therapy
- 10:30 J. I. Ingle, dean, School of Dentistry, University of Southern California, Los Angeles: Differential diagnosis of oral and perioral pain
- 2:00 W. D. Cavanagh, Toronto: A winning team—the practice of endodontics and crown and bridge prosthesis
- 3:15 J. I. Ingle: Periodontic and endodontic consideration in a restorative practice

TUESDAY, MAY 16

- 9:00 N. S. Taichman, Toronto: Mechanism of tissue destruction in acute inflammation
- 10:00 M. A. Listgarten, Toronto: Ultrastructure of connective tissue with specific reference to pulp and periodontic ligament
- 11:15 H. G. Poyton, Toronto: Local and general conditions affecting periapical bone — radiographic aspect
- 2:00 N. S. Taichman: Host's response to bacterial infection
- 3:45 Business meeting

Further information may be obtained from I. A. Arshawsky, 566A Yonge Street, Toronto, Ontario.

Two PH Groups Slate Meetings May 15 and May 16-17

The Ontario Dental Public Health Council has scheduled its 1967 annual breakfast meeting at 8.30 a.m. on Monday May 15 in the Ontario Room of Toronto's Royal York Hotel. R. A. Connor, chief, Dental Health Division, Department of National Health and Welfare, Ottawa, will be the speaker. His address is titled "Do you care about denticare?"

The Canadian Society of Public Health Dentists will hold its annual meeting in conjunction with the CDA-ODA centennial convention at Toronto's Royal York Hotel May 16-17. The following program has been announced:

TUESDAY, MAY 16

- 2:30 Business meeting

WEDNESDAY, MAY 17

- 9:00 K. C. Charron, Deputy Minister, Ontario Department of Health: Dentistry and public health in Ontario

Class Reunions Announced:

University of **Toronto** class of **5T1**: Tuesday evening, May 16, at the Royal York Hotel, Alberta Room.

University of **Toronto** class of **5T8**: Tuesday evening, May 16, at the Royal York Hotel. Activities for members' wives will be provided. W. S. Schwetz, 5150 Dundas Street West, Islington, Ontario.

The Association

L. H. Bowen Joins CDA

Lloyd H. Bowen, formerly executive secretary of the National Fluoridation Committee, Health League of Canada, has joined the CDA headquarters staff where he will be attached to the Bureau of Public Information.

Mr. Bowen, who has had extensive business experience, joined the Health League in 1959. He helped to organize the National Fluoridation Committee and, under its guidance, has actively promoted the acceptance of fluoridation in Canada.

News from Parliament

Commons Amends Medicare Legislation

The government's medicare legislation was amended in the Commons December 6 to permit inclusion in the future of a wide range of health services provided by non-medical practitioners.

Under the amendment, the cabinet is empowered to authorize federal medicare contributions to any medically-required services that are covered under provincial insurance schemes.

This means that if a province wants to insure dentists' services, it must apply to the federal government. If the cabinet agrees, it will be able to authorize federal contributions. If the cabinet does not

agree, the province will have to pay entirely for the additional coverage.

The government amendment removed the biggest stumbling block in clause-by-clause study of Bill C-227. A number of amendments had earlier been proposed by opposition MPs to widen the scope of the bill's clause defining what services are insurable. These were ruled out of order because parliamentary rules require that amendments that would increase spending must be proposed or supported by the government.

On December 8 the Commons gave third and final reading to the medicare bill. The Senate passed the bill on December 16. Royal assent followed on December 21. Commenting on this action, CDA Secretary W. G. McIntosh said that it was now up to the corporate members in each province to seek the inclusion of dental benefits.

Parliament Will Probe Discrimination Against Foreign Physicians

A parliamentary enquiry into alleged discrimination against foreign physicians is in prospect for this year. The *Toronto Globe and Mail*, in a report published late last year, said the Senate-Commons Committee on Immigration Policies has invited the Canadian Medical Association to submit a brief and expects to have spokesmen for the association testify before the committee.

"We would like to get information on allegations that physicians who are not citizens have been denied the right to practise," said M. L. Klein (Lib.-Montreal Cartier), joint chairman of the committee with Senator Leopold Langlois. Mr. Klein said his committee had received representations from a small Ontario community which complained it was unable to obtain a physician. He claimed the matter was of interest to his committee because it is studying the white paper on immigration which deals, in part, with integration of new Canadians.

The committee has already taken evidence from Manpower and Immigration Minister Jean Marchand and his officials and from Dr. John Deutsch of the Economic Council of Canada.

Canada and the Provinces

Quebec College Inaugurates Special Licensing Exam for Foreign Graduates

Effective October 1, 1967, the College of Dental Surgeons of the Province of Quebec will allow foreign university dental graduates to take a special written and practical examination in order to qualify for licensure in Quebec. Applications will be thoroughly investigated and applicants must satisfy certain basic requirements before the college will admit them to this special examination. They must be landed immigrants who have declared their intention of becoming Canadian citizens. They must give proof of pre-dental education equivalent to that required for the study of dentistry in Quebec. They must also possess good knowledge of French or English.

Candidates who pass the examination will be granted a temporary licence pending the fulfillment of citizenship requirements. Candidates who fail will be required to earn a DDS from an approved Canadian dental school or a dental school affiliated with the American Association of Dental Schools before being readmitted to a Quebec licensing examination.

Amended Regulations Strengthen Hospital Dentistry in Ontario

A recent amendment to Regulation 523 under Ontario's Public Hospitals Act rectifies a long standing deficiency in the provisions governing hospital dental services in Ontario.

Regulation 523 deals with hospital management. The revised version includes provisions for the appointment, organization and function of a dental staff in a public hospital.

Significant improvements are found in sections 30a and 35. Section 30a now defines the terms of admission for patients requiring dental treatment in a hospital. Section 35 authorizes dentists to order medication and other treatment for hospital patients under their care without

requiring the countersignature of a staff physician.

International Items

Another Australian State Recognizes Canadian Graduates

The Dental Board of the state of Victoria in Australia has decided to extend immediate recognition to graduates of all fully accredited Canadian and American dental schools. The action entitles graduates from these universities to immediate registration in Victoria without further examination.

Previously, only graduates of Melbourne University and holders of a qualification issued by United Kingdom dental schools or any of the four British Royal Surgical Colleges were entitled to immediate registration in the state of Victoria.

Two years ago the state of New South Wales extended similar recognition to graduates of fully accredited Canadian and American dental schools.

New Orthodontic Group Schedules Feb. 5 Chicago Meeting

A new organization, the Federation of Orthodontic Associations, composed of the International Academy of Orthodontics, the American Academy of Orthodontics for the General Practitioner, and the American Society for the Study of Orthodontics, will hold its first annual meeting February 5 at the American Dental Association building in Chicago.

The program will cover such topics as electric soldering, design and fabrication of simple removable orthodontic appliances, basic principles of twin wire therapy, clinical applications of twin wire therapy, universal light arch wire technique and the Jarabak light wire technique.

Further information may be obtained from David Watson, program chairman, Federation of Orthodontic Associations,

2001 West Capitol Drive, Milwaukee, Wisconsin, USA.

Ski-Dental Seminar in Wisconsin Feb. 20-23, 1967

Canadian dentists have been invited to attend the third annual ski-dental seminar February 20-23, 1967, at Mount Telemark, Cable, Wisconsin. The meeting is sponsored by the Northwest District Dental Society of Wisconsin. The registration fee of \$10 should be mailed directly to T. G. Kliszcz, Hayward, Wisconsin, USA.

Dr. Skinner, Dental Materials Expert, Dies at 70

E. W. Skinner, emeritus professor of physics at Northwestern University Dental School and an international authority on dental materials, died December 3 at the age of 70. Dr. Skinner recently joined Coe Laboratories as research director.

Hinman Dental Meeting Scheduled in Atlanta March 19-22

Canadian dentists are invited to attend the 55th annual Thomas P. Hinman Dental Meeting to be held March 19-22 at the Atlanta, Georgia, Marriott Motor Hotel.

Among foreign dental experts to present programs is Hans Selye, professor at the Institute of Experimental Medicine, Université de Montréal, one of the world's leading authorities on the stress syndrome theory. Other foreign clinicians to be featured are: Henry Beyron of Stockholm, Sweden, an authority on occlusion, and S. J. Vazirani, dean and professor, Department of Mouth and Face Division, Government Medical College, Patiala, Punjab, India.

There will be eight limited attendance clinics in periodontic techniques, full dentures, endodontics, occlusion, oral surgery, dentistry for children, mouth rehabilitation and radiography.

For further information, write to M. C. Goldstein, 950 West Peachtree Street NW, Atlanta, Georgia 30309, USA.

Oral Pathologists Plan April Meeting in Miami

Canadian dentists have been invited to attend the annual meeting and seminar of the American Academy of Oral Pathology in Miami Beach April 5-9, 1967. Robert Goltz of the University of Colorado will present this year's seminar titled "Dermatopathology." Further information may be obtained from S. M. Standish, secretary, School of Dentistry, Indiana University, Indianapolis 2, Indiana 46202, USA.

NW Academy of Dental Medicine Meets May '67

Canadian dentists have been invited to attend the 23rd annual conference of the Northwest Academy of Dental Medicine May 18-21, 1967. The meeting will be held at Salishan Lodge, Gleneden Beach, Oregon. Further information may be obtained from Gladys Underwood, secretary-treasurer, 603 Selling Building, Portland, Oregon 97205, USA.

May 11-13 Meeting in Lebanon to Mark Beirut U Centennial

The Middle East Medical Assembly will sponsor a meeting in Beirut, Lebanon, next May to commemorate the 100th anniversary of the American University of Beirut. The assembly's dental section will join with the International College of Dentists to mark the occasion with a special three day meeting May 11-13. Canadian dentists who would like to attend or lecture at this meeting are invited to write to Cedric Haddad, chairman, Dental Section, Middle East Medical Assembly, Sadat Street, Ras-Beirut, Lebanon.

Seek Lecturers, Clinicians for 1967 ADA Annual Session

Applications for presentation of clinical lectures, table clinics, scientific and educational exhibits and motion pictures during the 108th annual session of the

American Dental Association in Washington, October 30-November 2, 1967 can be obtained on request from the office of the Council on Scientific Session, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611, USA. Applicants should specify the area in which participation is desired. Applications must be received by the Council before April to be considered.

Lecturers and Clinicians Sought for 1968 International Oral Surgery Meeting

Individuals interested in participating in the scientific session of the Third International Conference on Oral Surgery (combined with the 50th Annual Meeting of the American Society of Oral Surgeons) in New York City, October 7-12, 1968, are invited to write to William Rakower, 57 West 57th Street, New York 10019, USA. Applicants should include a brief biography and a summary of scientific areas of interest to them.

Canadian Dental Schools

Recent Staff Changes at Dalhousie U

Dean J. D. McLean of the Faculty of Dentistry, Dalhousie University, Halifax, has announced the following new appointments:

A. T. Roger has joined the staff as associate professor and director of the faculty clinic following retirement from the Royal Canadian Dental Corps.

J. P. Thomas has been appointed associate professor of paedodontics. Dr. Thomas comes from Emory University where he earned an MsD degree.

J. E. Grasso has returned from the University of Alabama where he earned a master's degree. Dr. Grasso is assistant professor of prosthodontics.

J. P. Sapp, Yarmouth, and J. A. Cox, Bedford, have been appointed full-time and part-time teaching fellows respectively. Named as part-time instructors were N. J. Layton, Truro, and P. L.

Faulkner, formerly with the Royal Canadian Dental Corps.

Recent retirements include those of G. W. Caldwell, Dartmouth, former instructor in prosthodontics, and H. S. Crosby, former professor of operative dentistry. Dr. Crosby was named professor emeritus in recognition of more than 40 years' service as a member of the Dalhousie faculty.

Other recent arrivals and departures include:

R. H. Bingham, professor of oral diagnosis and faculty secretary, who returned from a period of sabbatical leave in England;

F. W. Lovely, associate professor of oral surgery, who returned from the University of Michigan where he earned a master's degree;

A. K. Das, associate professor of oral pathology, who has returned to India to become dean at the University of Calcutta;

H. J. MacConnachie, associate professor of operative dentistry, who is taking graduate studies at Indiana University; and

D. G. Pentz, assistant professor of periodontics, who is taking graduate studies in Boston.

Dental Organizations

Dr. Henny to Address Que. Oral Surgeons

The Association of Oral Surgeons of Quebec announces that F. A. Henny, chief of the Division of Oral Surgery at the Henry Ford Hospital, Detroit, will address an afternoon and evening meeting beginning at 3:00 p.m. on Wednesday February 22. The topics are: "Differential Diagnosis of Facial Pain" and "Treatment of Temporomandibular Joint Disorders."

For further information please communicate with W. B. Donohue, Suite 513, 1414 Drummond Street, Montreal.

RCDS Election Results

Five directors were chosen in recent district elections of the Royal College of



Herbert Shilder (centre r.) of Boston University addressed a joint meeting of the Montreal Endodontia Society and the Académie Canadienne des Sciences Dentaires at McGill University October 1, 1966. Dr. Shilder spoke about the relationship between endodontics and periodontics. Flanking the speaker in this photograph are (l. to r.) J. A. Guay, Trois-Rivières, president of the Académie Canadienne des Sciences Dentaires; Harry Rosen, assistant professor, Department of Operative Dentistry, McGill University; and I. L. Feinchnider, president, Montreal Endodontia Society.

Dental Surgeons of Ontario. They are: R. W. Edwards, Belleville, District 2; A. B. Sutherland, Sudbury, District 3; H. M. Jolley and J. E. C. McGowan, Toronto, District 4; and D. A. Cheetham, Owen Sound, District 5.

Incumbent directors for Districts 1, 6, 7 and 8 were re-elected by acclamation. They are: J. P. Coupland, Ottawa; T. H. Wachna, Windsor; R. Michell, Kitchener; and E. J. Rajczak, Hamilton.

J. D. Purves, Toronto, was returned as representative from the Faculty of Dentistry, University of Toronto. W. J. Dunn, London, will represent the Faculty of Dentistry, University of Western Ontario.

Toronto Orthodontic and GP Study Groups to Meet March 16

James Moss, senior lecturer in orthodontics at University College Hospital Dental School, London, England, will address a combined meeting of the Toronto Orthodontic and General Practice Study Clubs March 16. The meeting will be held in the auditorium of the Faculty of Dentistry, University of Toronto. The subject of Dr. Moss' address is Advanced Removable Appliance Therapy.

Seats Available on Toronto Charter Flight to Paris Congress

The Toronto Academy of Dentistry announces that seats are still available on a charter flight to the FDI Paris 1967 World Dental Congress. The flight departs July 2 and returns July 30. The return fare is \$290. For further information, please contact Murray Cornish, 151 Eglinton Ave. West, Toronto, or the Academy of Dentistry, 230 St. George Street, Toronto.

Saskatchewan College Elects Dr. Cowburn

H. H. Cowburn, Saskatoon, was elected president of the College of Dental Surgeons of Saskatchewan December 3. He succeeds G. H. Janzen, Prince Albert.

R. J. Fraser, North Battleford, is the new vice-president. F. R. Smith, Saskatoon, was reappointed secretary.

Dr. Upton Named Registrar for BC

W. Ross Upton has been appointed registrar by the Council of the College of



W. R. Upton

Dental Surgeons of British Columbia. He succeeds Max Nacht who has resigned.

Dr. Upton has been executive secretary of the College, the BC Dental Association and the Vancouver and District Dental Society for the past 10 years. He now assumes the additional duties of registrar.

Royal Canadian Dental Corps

RCDC Assn. Installs Harris as President

Lt.-Col. A. J. Harris of London, Ontario, has been elected president of the Royal Canadian Dental Corps Association. He succeeds Lt.-Col. M. J. Snidal of Winnipeg.

Others elected at the 18th annual meeting of the RCDC Association, held December 9-10, 1966 in Ottawa are: Lt.-Col. J. E. Hallett, Halifax, president-elect; Lt.-Col. S. G. Geldart, Edmonton, first vice-president; and Lt.-Col. J. M. R. Gourdeau, Montreal, second vice-president.

Lt.-Col. M. C. Parks, St. Catharines, Ontario, is secretary and Lt.-Col. T. W. Le Sage, Ottawa, is treasurer.

Maj. Durand Retires

Maj. J. Durand, Montreal, recently retired from the Royal Canadian Dental Corps after 23 years of service. Associated with the Corps since 1942, Maj. Durand served with the navy aboard HMCS Magnificent and with the Canadian Bri-

gade in Europe. He has accepted a new appointment with the Montreal health department.

Two Officers at Postgraduate Course in England

Majors J. F. Bégin and I. W. Susser are attending a basic dental science course at the Royal College of Surgeons of England in London. This eight weeks' course extends from October 31, 1966 to January 20, 1967.

Promotions

Canadian Forces Headquarters recently announced the following promotions:

J. W. Turner: lieutenant-colonel to colonel; and

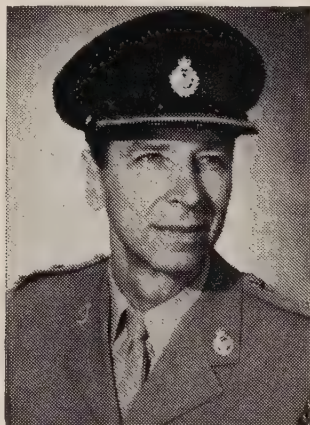
P. S. Sills: major to lieutenant-colonel.

A native of Niagara Falls, Ontario, Col. Turner graduated in dentistry from the University of Toronto in 1945 and joined the Royal Canadian Dental Corps the



Brigadier B. P. Kearney was recently appointed Director General of Dental Services for the Canadian Forces. Brig. Kearney succeeds Brig. K. M. Baird who retired last month.

same year. He has seen service in Europe and at various stations across Canada and was chief instructor in the RCDC School at the Canadian Forces Base Borden. Col. Turner is presently senior consultant at the Division of Dental Services, Canadian Forces Headquarters, Ottawa.



Col. J. W. Turner

Lt.-Col. Sills is presently employed at the RCDC School in charge of the prosthetic department.

Economics

Quebec Oral Surgeons Form Professional Union

The Association of Oral Surgeons of Quebec has been incorporated as a professional syndicate by authority of Quebec's Provincial Secretary. The date of incorporation, according to the *Quebec Official Gazette*, is June 27, 1966.

This action parallels the formation of a similar general 'Professional Association Syndicate' for Quebec dentists as reported on page 684 of the November Journal.

NY Service Corporation Begins to Repay Dentists

The New York Dental Service Corporation has started to pay participating dentists 50 per cent of the fees withheld from them in 1965 to support the corporation during a period when claims exceeded premiums. NYDSC was the first

service corporation to ask dentists to accept prorated fees. Starting May 1, 1965, dentists were paid 70 per cent of fees in claims.

The state's superintendent of insurance recently approved the partial repayment to participating dentists, reflecting the corporation's improved financial condition. NYDSC expects to continue payments at approximately six month intervals.

Public Health

Dr. Kohli, Ontario Dental Director, Retires

F. A. Kohli, senior consultant in public health dentistry to the Ontario Department of Health, retired on January 10. A native of Hespeler, Ontario, Dr. Kohli graduated with a DDS from the University of Toronto in 1928. He practised in Hespeler for six years, then accepted an appointment at the Ontario Hospital, Orillia, in 1934.



F. A. Kohli

In 1938 Dr. Kohli was named director of dental services for the Ontario Department of Health. He left that position in 1940 to join the Canadian Dental Corps, serving overseas for two and a half years. Upon his return to Toronto in 1944, Dr. Kohli enrolled at the Faculty of Dentistry and School of Hygiene, University of Toronto, where he earned a Diploma in Dental Public Health the following year. He rejoined the provincial health department in 1945.

A past chairman of the Ontario Association of Public Health Dentists and of the Dental Health Section, Canadian Public Health Association, Dr. Kohli was active in the recent formation of the Canadian Society of Public Health Dentists.

Ottawa Invests \$1.7 Million in Research and Public Health

The federal government has given approval, under the Federal Health Grants program and on recommendation of the Dental Division of the Department of National Health and Welfare, to the expenditure of nearly one and three-quarter million dollars in the 1966-67 fiscal year to promote better dental health for Canadians. The money will be divided among the 10 provinces as follows: Newfoundland \$165,128; Prince Edward Island \$34,641; Nova Scotia \$150,595; New Brunswick \$41,569; Quebec \$631,000; Ontario \$224,918; Manitoba \$89,433; Saskatchewan \$86,709; Alberta \$137,290; British Columbia \$179,748.

Bulk of the money (\$1,470,976) will be used to support dental health programs. Professional training will absorb \$137,768 and \$132,290 have been earmarked for research.

Fluoridation

London and Hamilton Accept, Kingston Rejects, Fluoridation

Fluoridation was rejected by the voters in two Ontario centres and approved in two others in plebiscites held in conjunction with the December municipal elections.

In London, where fluoridation was turned down a few years ago, the electorate decided to introduce it. Hamilton electors also decided in favour.

In Kingston, which has had fluoridated water since last May, and in Orillia, which had the equipment to fluoridate but had not started, the voters rejected the health measure.

Elsewhere in Ontario, Hanover voters rejected it but Smiths Falls approved it.

In Waterloo, the Public Utilities Commission must comply with a directive from the city council which ordered fluoridation on November 7.

Seven out of 10 US Adults Favour Fluoridation, Survey Shows

Seventy-one per cent of a cross section of the adult population in the United States have favourable attitudes toward fluoridation, according to a recent survey conducted for the US Public Health Service. Only 14 per cent of those queried had a negative attitude and 15 per cent had not made up their minds.

The survey revealed that 41 per cent of the respondents thought a fluoridation campaign would be successful in their community. Three out of 10 believed it would be unsuccessful, and a similar proportion did not know whether it would succeed or not.

"These findings," said a USPHS spokesman, "emphasize the need for developing strong fluoridation support through better organization in all areas of a community and also for intensive public education." It is feasible, he said, through careful planning and action to minimize the impact of the highly vocal minority which refuses to accept fluoridation.

South African Commission Backs Fluoridation

A commission of enquiry has recommended to the South African government that public water supplies be fluoridated to combat dental decay. An announcement to this effect was reportedly issued by the nation's health minister, A. Hertzog, at the end of 1966.

The eight-man scientific commission recommended that:

Local authorities should be empowered to fluoridate their water supplies; and

In cases where water supplies contain too much fluoride, assistance toward reducing it should be rendered.

Awards and Honours

A. A. Myles was granted honorary life membership in the College of Dental Surgeons of Saskatchewan December 3. The college also awarded 'Forty Year Plaques' to **S. W. Holt**, Lloydminster, and to **D. I. Neuman** and **A. Singer**, Saskatoon.

Deaths

Atkinson, George Frederick. 67. Gravenhurst, Ontario. Royal College of Dental Surgeons of Ontario, 1922. 14-10-66. Associate member CDA. Survived by **Elsie** (wife).

Malo, Euclide. 71. Montreal. Université de Montréal, 1918. 28-8-66. Survived by **Adrienne** (wife).

Pritchard, William Hilliard. 68. Ottawa. Royal College of Dental Surgeons of Ontario, 1923. 29-8-66. Associate member CDA. Survived by **Mrs. W. H. Pritchard** (wife) and **Dr. J. S. Pritchard** (son).

Warriner, Frederick E. 82. Sandy Hook, Manitoba. Royal College of Dental Surgeons of Ontario, 1907. 26-12-66. Associate member CDA. Survived by **F. E. Warriner** of Vancouver and **R. E. Warriner** of Winnipeg (sons) and **Mrs. H. Brittain** and **Mrs. I. Van Voght** of Winnipeg (daughters).

in memoriam

Charles Reginald Goodall



C. R. Goodall

Mr. C. R. Goodall, secretary of the Governing Board of Dental Technicians of Ontario, died on November 8, 1966. He was born in Reading, England, and came to Canada at an early age. He received his education in England and in Toronto.

Following service with the Canadian Dental Corps during World War I, Mr.

Goodall established his own dental laboratory business in Toronto. Over the years, he has held every position in the Dental Laboratory Association of Toronto, the Toronto Study Club of Dental Technicians and was one of those instrumental in the formation of the Governing Board of Dental Technicians of Ontario.

Mr. Goodall is survived by his wife and one son.

Earl Clifton Jackson

Dr. E. C. Jackson, who had practised dentistry in Hamilton, Ontario, for over 40 years, died on October 15, 1966. He was born in Ripley, Ontario, in 1896. During World War I he served with the Royal Air Force. Following his discharge he entered the Faculty of Dentistry at the University of Toronto, graduating in 1923. He retired in 1964.

Dr. Jackson was a past president of the Hamilton Academy of Dentistry and was made an honorary life member of that organization on his retirement. He was also a member of the Canadian Dental Association.

Surviving **Dr. Jackson** are his wife, **Adelaide Wright**, and three sisters.

Prevalence of Dental Caries and Dental Health in Relation to Variable Concentration of Fluorides in Drinking Water: Clinical Study on Finnish School Children

Arje Scheinin, Ensio Kalijärvi, Onerva Harjola and Kerttuli Heikkinen. Acta Odont. Scandinav. 22:229, 1964.

This study was conducted on 983 children aged 11 years. These children were residents of at least six years' standing in nine communities with varying fluoride levels in the drinking water. Dental examinations were performed as a blind study, the examiners having no knowledge of the fluoride concentrations in the communities studied. Duplicate clinical examinations were made in one-third of the children.

Determination of the fluoride content of the drinking water was carried out by obtaining a 250 ml. sample from every child examined. The great majority of these samples consisted of well water. The children were grouped (1) according to residence, and (2) according to fluoride concentration. Subjects were divided into five groups, the fluoride concentration ranges being 0.00-0.1, 0.11-0.39, 0.4-0.99, 1.0-1.59 and 1.6 ppm (=mg./l.).

It was found that the error in the method of estimating caries prevalence (DMFS or DMF index) was of the same magnitude as when recording the number of erupted teeth. The lowest degree of variation between examiners was observed in the estimation of the degree of mottled enamel.

There was a highly significant inverse relationship between caries prevalence and fluoride concentration. This correlation was found between all five fluoride groups ($P < 0.001$).

No significant difference in caries prevalence between boys and girls was observed when using the DMFS and DMF indices. The number of erupted teeth, however, was significantly higher in girls ($P < 0.001$).

Retardation of the eruption rate was observed only between the 1.6 ppm and 0.4-0.99 ppm groups ($P < 0.01$). The number of retained deciduous molars was correspondingly higher in the high fluoride concentration group ($P < 0.05$). A difference in the eruption rate of the second permanent molars was not significant.

A highly significant relationship ($P < 0.001$) was found between the prevalence of enamel opacities and high fluoride concentration. The degree of mottling was at a very low level in all five fluoride concentration groups.

Gingival Tissue Reaction to Topical Application of Stannous Fluoride for the General Anaesthesia Patient

R. E. McDonald. J. Den. Children 31:100, 1964.

Child patients of four paedodontists experienced mild sloughing of the marginal gingival tissue when an eight per cent stannous fluoride solution was applied while they were under a general anaesthetic for restorative surgical procedures. Parents of children receiving a general anaesthetic for restorative procedures should be informed prior to the treatment that the stannous fluoride application may cause sloughing and even ulceration of the gingival tissues and mucous membranes. A thorough prophylaxis should precede placement of the rubber dam for a quadrant of restorations. Stannous fluoride should be applied after the restorative treatment has been completed for that quadrant, but before the removal of the rubber dam. Lubrication of the mucosal tissues with petrolatum prior to rubber dam application may reduce the tissue reaction. If a rubber dam is not used for operative procedures, an oral evacuator should be used at the time of the topical fluoride application to limit the amount of solution that flows over the tissues and to prevent possible aspiration of the solution.

Care of the Gingival Tissues near Interproximal Restorations

J. D. Eccles. D. Practitioner 14:223, 1964.

In young people, the epithelium lining the interdental col is of dental origin and has no reparative capacity. Therefore, inflammation due to injury incurred during restora-

tive treatment will not resolve, and chronic inflammation will result. Later, this epithelium is replaced by oral stratified squamous epithelium which possesses a much better reparative capacity. Filling materials may irritate by virtue of rough surfaces or marginal excess which favour plaque accumulation, or defects at the margin of the restoration, which act in the same way. Electrical potential set up between dissimilar metals and the chemical content of filling and cementing materials may also act as irritants.

During cavity preparation, utmost care must be taken to avoid unnecessary trauma to the gingiva. Subgingival extension of the restoration remains controversial. However, there must be sufficient extension to permit passage of a matrix band or impression material. Trauma to the gingiva incident to matrices, copper bands or retraction materials usually heals satisfactorily provided there is no bacterial plaque or continuous mechanical or chemical irritation. Proximal contour is important for the prevention of food impaction. Adequate cleansing of the interproximal space, and contouring to permit this are significant preventive measures. Periodontic disease should generally be eliminated before placing a permanent restoration.

The Relationship Between the Relative Amount of Space Present in the Deciduous Dental Arch and the Rate and Degree of Space Closure Subsequent to the Extraction of a Deciduous Molar

Margaret E. Richardson. D. Pract. (Bristol) 16:111, 1965.

Negative correlations were found between the space condition and space loss in the first two years after extraction of a deciduous molar. Crowded dentitions tended to lose more space after an extraction than spaced dentitions.

Regression lines between the space loss at the end of the first and subsequent six month periods made it possible to predict the average space loss at the end of the second, third and fourth six month periods from the space loss in the first six months. On the average, the largest amount of space was lost in the first six months, and the rate of loss thereafter was less.

High negative correlations were found between the space conditions and space loss in the first six months before eruption of the permanent molars, but not after. This suggests that eruption of the first permanent molars may have some influence on space loss. Slightly more space was lost when an upper deciduous molar was extracted than when a lower deciduous molar was extracted, and slightly more space was lost when a lower second deciduous molar was extracted than when a lower first deciduous molar was extracted.

Relative arch spacing may be the most important factor in the reaction to premature extraction, but many other variable factors, including age and the site of extraction, complicate the result. No mathematical formulas can be used to calculate the amount of space which will be lost after extraction of a tooth.

Endodontic Success: a Reappraisal of Criteria

I. B. Bender, Samuel Seltzer and Walter Soltanoff. Oral Surg. 22:780, 1966.

Radiographic evidence alone is not an adequate criterion for the assessment of endodontic success. Radiographic interpretations of radiolucencies present many fallibilities. These are usually produced by differences in vertical and horizontal angulation of the x-ray beam. Systemic and local constitutional disorders often simulate periapical radiolucencies that are not of endodontic origin. Periodontic disease often causes radiographic lesions that are mistaken for evidence of endodontic treatment failure. These lesions develop either before or after endodontic treatment.

Differences in the length of observation time used for the evaluation of success can produce variations in the rates of success or failure. Failures as manifested by radiographic evidence usually will occur within two years, whereas the clinical symptoms of pain, swelling, and development of a fistula will occur during treatment or within the first few months after treatment.

In endodontically treated teeth with periapical radiolucencies, there is a definite correlation with histological findings, whereas no such correlation exists in teeth without periapical radiolucencies. This lack of correlation is especially true in the case of teeth with necrotic pulps.

Large, small, arrested, or reduced areas of rarefaction all contain the same inflammatory cells. Most radiolucencies, whatever their size may be, are either granulomas or cysts.

Objective Evaluation of Audio Analgesia Effects

J. W. Howitt and George Stricker. J. Amer. Dent. Ass. 73:874, 1966.

Audio analgesia techniques produce a real clinical effect that is largely due to suggestion. The audio analgesic device affects the patient's tolerance for pain rather than his response threshold. Regardless of the type of audio analgesic instrument used or of the frequency of oral stimulations, effectiveness depends on the technique being accompanied by appropriate suggestions.

Local Anesthesia and Pain Control in Dental Practice

L. M. Monheim. Ed. 3. St. Louis, The C. V. Mosby Company, 1965. 308 p. Illus. \$9.50

After a few short years this book is in its third edition, this being an indication of its favourable reception. It would be difficult to find a more qualified author than Dr. Monheim to write a book on local anaesthesia and pain control.

The stated purpose of this text is to provide the dental student and dentist with information to facilitate the control of pain in all phases of dental practice. This objective is achieved by a systematic development of the subject.

The initial chapter offers a general discussion of pain perception and reaction, and methods of pain control. A very detailed chapter on the anatomy of the trigeminal nerve is followed by equally well detailed chapters relating to regional anaesthesia including techniques, local anaesthetic solutions, and so forth. The inclusion of the interseptal technique of regional analgesia on page 67, and of pyrrocaine hydrochloride (Dynacaine) as one of the nonester local anaesthetics on page 151 are two evident additions in the first five chapters of the third edition.

The section on anaesthetic complications and office emergencies is well presented and has been extensively revised. New to this chapter is a very fine description of cardiopulmonary resuscitation. A more complete discussion of idiosyncrasy and anaphylactoid reactions is presented and the use of succinylcholine chloride and d-tubocurarine chloride to counteract severe convulsions is introduced.

Sections on pre-anaesthetic patient evaluation, pre-anaesthetic medication and post-operative control of pain are ably presented and offer an abundance of practical information.

The final three chapters, entitled Armamentarium, Sterilization and Medicolegal Aspects of Regional Analgesia, contribute to making this volume extremely well organized and well presented. I strongly recommend this book for the undergraduate dental student and for dentists who wish to provide all-encompassing pain control for their patients.

A. E. Hoffman

Guide to Dental Materials

American Dental Association, Council on Dental Research. Ed. 3. Chicago, American Dental Association, 1966. 188 p. Illus. \$2.50

The Council on Dental Research of the American Dental Association has for the third time supervised the publication of this volume as a successor to the older booklet, *American Dental Association Specifications for Dental Materials*. The intention of the Association is to publish the guide every two years, which wisely allows sufficient time for new pertinent information to be developed and included in successive editions. Thus, this 1966 edition has been expanded by 30 pages from the last publication.

The need for a wider application of specifications for dental materials is recognized and the relationship with the Fédération Dentaire Internationale and the International Standards Organization is explained in an informative and interesting manner.

The text is arranged in a logical manner to provide the reader with the essentials for handling and manipulating the most common materials used routinely in dental practice. The book correlates clinical and laboratory applications with the specifications laid down for them. Approximately 100 pages are devoted to this important section. The chapters on resins and rotary cutting instruments have been expanded and updated to include mention of more recent developments. The subject of radiation is treated with greater emphasis on the hazards involved in using radiographic equipment. Also discussed is the status of safety measures and protective auxiliary devices. An excellent reference list is provided at the end of each major topic.

The section containing the specifications is presented in the customary formal manner and includes the revisions for casting gold alloys and denture base polymer approved and made effective since the last edition.

A section with brightly coloured pages lists all of the certified products and can be quickly identified and referred to in the text.

The preparation of the *Guide* was executed with meticulous care. Special credit is due to G. C. Paffenbarger, J. W. Stanford, Marion P. Kunipula and the staff of the ADA

Research Division, and Mr. W. T. Sweeney, chief of the Dental Research Section of the National Bureau of Standards whose efforts were largely responsible for its production.

This booklet is highly recommended to every dental practitioner for its valuable practical information. To the dental student and researcher it provides the additional details of specifications and test methods for dental materials as an adjunct to their study of dental materials science.

Z. Kasloff

The Year Book of Dentistry (1965-1966 Year Book Series)

S. D. Tylman, D. A. Keys, J. W. Knutson, R. E. Moyers, H. B. G. Robinson and H. B. Clark, Jr., ed. Chicago, Year Book Medical Publishers, 1966. 464 p. Illus. \$8.80

The volume contains abstracts of articles published during 1964-65 in North American and overseas dental journals. There are chapters on diagnosis, endodontics, periodontics, oral medicine, caries and hard tissue lesions, public health, orthodontics, oral surgery and restorative and prosthetic dentistry. The editors make brief comments following each abstract. Many of these are helpful and pertinent. The journal in which each original article was published is noted together with the date of issue and relevant page numbers.

O. J. Yule

L'Orthodontie française: Volume 36 — 1965

J. E. Heskia, rédacteur. Lyon, France, Edition de la Société française d'orthopédie dento-faciale, 1965. 658 p. Illus. 80 F.

Ce volume impressionnant de quelque six cent cinquante pages est un compte rendu des conférences qui ont été présentées à des assemblées de la Société française d'orthopédie dento-faciale, tenues à Marseille et à Paris en 1965.

Les sujets traités lors de ces conférences couvrent les aspects théoriques et cliniques de la pratique de l'orthodontie.

La présentation du début sur les principaux points anthropométriques utilisés en orthopédie dento-faciale constitue une synthèse bien réalisée par M. G. Foquet et Mlle M. Martin-Lacombe sur ce sujet très vaste et souvent morcelé par les auteurs. Le reste de la première partie comporte des sujets non moins intéressants tels que 'overbite' et extraction en série, ancrages extra buccaux, disjonction rapide, ostéotomie ver-

ticale des branches montantes du maxillaire inférieur, etc.

La dernière partie des rapports, quoique moins volumineuse, comporte des sujets non moins intéressants tels qu'une évaluation sur le diagnostic et le plan de traitement dans les dentures mixtes (méthode de Tweed). L'étude céphalométrique sur les modifications des tissus durs par M. J. Philippe, et les modifications du profil cutané par Philippe Aloé, attirent nettement l'attention du lecteur.

Tous ces rapports de conférences sont suivis de discussions très à point par certains membres de l'assemblée et les discussions elles-mêmes rendent les présentations très concrètes.

Les membres de la Société française d'orthopédie dento-faciale responsables de ces travaux pour 1965 démontrent le travail intense accompli par nos confrères d'outre-mer.

This book contains reports of papers presented at the annual meetings of the French Orthodontic Society held in Marseille and Paris 1965.

Included are descriptions of anthropometric measurements used in orthodontics, management of overbite, serial extraction, extra-oral anchorage and vertical osteotomy of the mandibular ramus.

Diagnosis and treatment planning in the mixed dentition (Tweed method) and cephalometric evaluation of hard tissue and facial profile changes are two further subjects reviewed in this text.

Each report is followed by a verbatim transcript of the actual discussions at these meetings.

Jean L. Bertrand

Review of Dentistry: Questions and Answers

M. K. Hine, ed. Ed. 4. St. Louis, C. V. Mosby Company, 1966. 581 p. \$12.50

As stated in the preface of this edition, a general review of the entire field of dentistry is presented. Twenty-three sections on different subjects are covered in a concise and orderly manner.

In a book such as this, repetitions are obviously necessary in order to supply continuity in the consideration of the various subjects. Also, a work in which a number of authorities contribute is bound to contain differences of opinion. This increases its value as it allows the reader to weigh the merits of each and so select the opinion which he prefers.

As a preparation for American state or national board examinations, as well as a general review for the undergraduate or general practitioner, this book should prove of highest value.

A. G. Racey

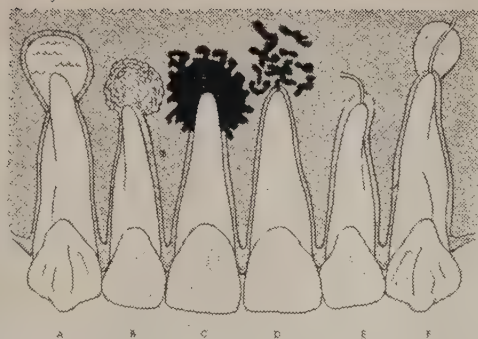


Fig. 1

EXAMINATION, cont'd

These various symptoms may be extremely important in making a diagnosis.

Examination (Fig. 1) begins with the visual inspection of the tooth and the adjacent hard and soft tissue. It includes the examination of the tooth, the tongue, the hard and soft palate, and the floor of the mouth. The state of the gingiva—changes in color, changes in inflammation or other abnormalities, is noted. These irregularities may include bleeding, mass enlargement, ulcer,

suppurative infections, and inflammatory changes. The teeth are checked for color and changes in contour, and for the presence of exposed dentin, abrasion, erosion, and carious lesions. Large restorations and prosthetic appliances and possible fractures of the enamel surface of the teeth should be noted. The presence of trauma or laceration is determined by observing the integument of the upper and lower teeth in certain and in lateral occlusion.

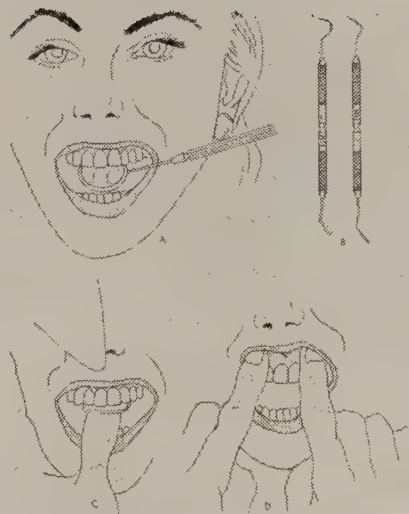


Fig. 2

Typical pages from the "Atlas of Endodontic Technique."

Atlas of Endodontic Technique. A Clinical Guide

I. I. Abramson and J. P. Norris. St. Louis, The C. V. Mosby Company, 1966. 188 p. Illus. \$16.00

This latest addition to the increasing number of endodontic publications is unique because it is the first to present an illustrated guide to endodontic treatment procedures.

Except for the first chapter dealing with diagnosis, classification and recording of endodontic lesions, this book is entirely devoted to the presentation of step by step clinical procedures of endodontic management. My only criticism applies to the classification of pulpitis in the first chapter—particularly in light of previously published texts and articles concerning the pathology of the pulp.

The description of the clinical procedures is supported by a series of illustrated pictures. For the most part these are exceptionally well done. However, in a few instances a photograph rather than an illustration or a combination of the two would better portray the topic under discussion.

Regardless of these inadequacies, the *Atlas* is a useful and valuable guide to the clinical practice of endodontics and will no doubt become a 'chairside assistant' to many a practitioner and student.

C. D. Torneck

Accepted Dental Remedies, 1967

American Dental Association. Council on Dental Therapeutics. Ed. 32. Chicago, American Dental Association, 1966. 287 p. \$3

The principal function of this publication is to provide the practising dentist with information concerning drugs which are of value in his practice. Areas of usefulness that are clinically established and the manner in which the drugs should be employed are described. The practitioner is also informed of the possible side reactions caused by drugs, and interactions between drugs.

The section on "General Principles of Medication" is of particular value in acquainting the dentist with the appropriate consideration which must be given to those patients who are receiving medical care, and already receiving drug therapy. Included in this section are clear instructions on how to cope with emergency respiration and circulation problems.

Revisions have been made to include information which has appeared in the dental literature since the previous edition. The chapters entitled "Therapeutic Suggestions for Certain Clinical Problems" and "Current Therapeutic Trends" have been considerably expanded.

The new edition also contains the recently revised Provisions for Acceptance of Products by the American Dental Association. These regulations have been simplified and clarified.

Clifford Reynolds

Oral Hygiene in Adults, United States, 1960-1962

US Department of Health, Education and Welfare. National Center for Health Statistics. Vital and Health Statistics. THS Publication No. 1,000, Series 11, No. 16

Oral hygiene was seriously and probably habitually neglected by an estimated 11.5 million American adults, according to findings recently published by the US National Center for Health Statistics. This estimate and others indicating the level of oral hygiene maintained throughout the United States are based on health examinations administered between October 1959 and December 1962 to a probability sample of the non-institutional US population aged 18-79 years. The degree of oral cleanliness was determined by the Simplified Oral Hygiene Index. The amount of both loose debris and calculus was measured on a scale ranging from 0.0 (no debris, stain or calculus present) to 6.0 (more than two-thirds of the assessed tooth surfaces covered with both debris and calculus).

Generally, women exhibited healthier levels of oral hygiene than did men. In both men and women, however, oral hygiene became progressively worse with increasing age because of the steady accumulation of calculus. The amount of debris showed no appreciable increase with age. At all age levels, women had both less debris and less calculus than did men.

The degree of oral cleanliness was considered on the basis of demographic variables such as income, education, residence, and race. Oral hygiene was found to improve with increasing education and with increasing income. Except that white rural residents had poorer levels of oral hygiene than white urban residents, estimates by place of residence did not vary significantly.

Substantial differences in oral hygiene were observed between white and Negro adults. The mean oral hygiene score was 2.2 for Negro men and women, compared with 1.5 for whites.

The variance in oral hygiene by race was accounted for in large part by differences in income and education. When either income or education for the white population was statistically adjusted for comparability with that of the Negro population, differences in oral hygiene became less apparent. The difference by race remained greater between men, however, than between women.

There was a high correlation between periodontic disease and oral hygiene. In the same population, periodontic disease increased or decreased in prevalence and severity according to the degree of oral cleanliness. Among persons with the same level of oral hygiene, there was little variation in the amount of periodontic disease by either income or education. Age, how-

ever, was always an important factor in the prevalence and severity of periodontic disease.

Periodontic disease is more prevalent in men than in women and in Negroes than in whites. As with all hygiene, periodontic disease decreased as education and family income increased.

F. E. Linder

Catalogue of the Menzies Campbell Collection

Prepared by J. Menzies Campbell. Edinburgh, Royal College of Surgeons, 1966. 137 p. \$3

The provision of accommodation for permanent exhibition of the Menzies Campbell Collection by the Royal College of Surgeons of Edinburgh is of great interest to members of the dental profession. The exhibit represents the lifetime effort of one man imbued with the need to preserve the past. Menzies Campbell ranks as a foremost dental historian of this age. The history of the profession has been his lifelong interest. Not content with collating facts, he sought out the articles and instruments used during the development of the profession. These now form a collection of inestimable value, the most complete collection anywhere in the world.

The catalogue, just published, is much more than a listing of the content of the collection. In concise informative language, Dr. Campbell describes the instruments and their uses, making the book a ready source of accurate information. The descriptions alone make the book valuable as a record.

The systematic grouping of the descriptions is fascinating. Extracting instruments illustrate the point. The author traces the origin of pelicans and follows this with a minute description of 15 varieties of the instrument in the order of development. Elevators, keys and forceps are treated in similar fashion.

The work of Dr. Campbell is characterized by meticulous care in establishing historical accuracy. He has written extensively. His articles have appeared in the dental literature for many years. In 1957 he published for private circulation a book entitled *From a Trade to a Profession* which is prized by all who possess a copy. This book, his other writings and the newly published catalogue impress the reader with the years of effort put forth by this one man. The profession owes Dr. Campbell a great debt of gratitude.

Dr. Campbell has been honoured on many occasions for his work. He is a fellow of the Royal College of Surgeons of England and the Royal College of Surgeons of Edinburgh. We, in Canada, are proud that he is a graduate of the Royal College of Dental Surgeons, Toronto (1912).

D. W. Gullett

The library of the Canadian Dental Association is open daily from 9.00 a.m. to 5.00 p.m. except Saturdays and Sundays. Books and periodicals may be borrowed by members by writing to the Librarian, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario. Books are loaned under the following terms: (1) The borrowed book may be retained for a two week period from the date received by the borrower. (2) Renewal for a further two week period will be permitted provided the book is not requested by another member. (3) Postage on books is paid by the Association. New books are listed periodically in the Journal.

The Canadian Dental Association also maintains a selection of educational films which are available on loan. Films are shipped prepaid and must be returned with shipping charges prepaid by the borrower. Members should specify the date on which a film is to be used and return the film immediately after use.

The Canadian Film Institute, 1762 Carling Avenue, Ottawa 13, Ontario, also has a selection of films on dental public health. Borrowers should make their requests for these films as far as possible in advance, indicating the proposed date of showing and giving second and third alternative showing dates. There is a service charge for these films. The Canadian Film Institute will ship the films express collect and the borrower must return them express prepaid. The Institute bills the borrower for the service charge.

A student recruitment film, "Challenge of Dentistry," may be borrowed directly from Modern Talking Picture Service, 1875 Leslie Street, Don Mills, Ontario.

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Additions • Acquisitions

BAKWIN, H. and BAKWIN, R. M. Clinical management of behavior disorders in children. Ed. 3. Philadelphia, Saunders, 1966. 652 p. \$15.70

BERNIER, J. L. and MUHLER, J. C. Improving dental practice through preventive measures. St. Louis, Mosby, 1966. 378 p. illus. \$18.90

- BRECKER, S. C. Clinical procedures in occlusal rehabilitation. Ed. 2. Philadelphia, Saunders, 1966. 502 p. illus. \$19.45
- BRIGHTMAN, V. and SHIP, I. I. Canker sores. (Practical Dental Monographs, July-August, 1966.) 40 p.
- BRITISH SOCIETY FOR THE STUDY OF ORTHODONTICS. Transactions, 1965. Bristol, John Wright & Sons Ltd., 1966. 176 p. illus.
- BURLINGTON ORTHODONTIC RESEARCH CENTRE. Progress Report Series, No. 6, 1960-1961. Toronto, Division of Dental Research, Faculty of Dentistry, University of Toronto, 1961. 104 p.
- CAMPBELL, J. M. Catalogue of the Menzies Campbell collection of dental instruments, pictures, appliances, ornaments, etc. Edinburgh, Royal College of Surgeons of Edinburgh, 1966. 137 p.
- DRILLIEN, C. M., INGRAM, T. T. S. and WILKINSON, E. M. The causes and natural history of cleft lip and palate. Edinburgh, Livingstone, 1966. 288 p. illus. \$8.65
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- GUSTAFSON, G. Forensic odontology. London, Staples Press, 1966. 263 p. illus. \$13.25
- HIRSCHFELD, L. and GEIGER, A. Minor tooth movement in general practice. Ed. 2. St. Louis, Mosby, 1966. 637 p. illus. \$18.90
- HOWE, G. L. Minor oral surgery. Bristol, John Wright & Sons Ltd., 1966. 300 p. illus. \$11.35
- JOHNSTON, J. F., MUMFORD, G. and DYKEMA, R. W. Modern practice in dental ceramics. Philadelphia, Saunders, 1967. 312 p. illus. \$14.05
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- KRESHOVER, S. J. and McCLURE, F. J., editors. Environmental variables in oral disease. Washington, American Association for the Advancement of Science, Pub. No. 81, 1966. 312 p. illus. \$9.40
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SWARDSTEDT, T. Odontological aspects of a medieval population in the Province of Jamtland, Mid-Sweden. Stockholm, 1966. 120 p. illus.

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ZEGARELLI, E. V. and KUTSCHER, A. H. Clinical stomatology. The Blakiston Division, McGraw-Hill Co., 1966. 303 p. illus. \$17.30

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Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies—original and a carbon—typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ x 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

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to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

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1. Gibb, G. H. Methods of achieving improved amalgam restorations. *J. Canad. Dent. Ass.* 30:413, 1964.

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2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

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The death of Governor-General Georges P. Vanier on Sunday, March 5, robs Canada of a citizen who served his country with a great deal more than duty demanded. The Journal joins the nation in mourning the loss of its beloved representative of Her Majesty the Queen.

The vital torrent

On an April morning, in the year 1616, a figure clad in sober black strode toward a lectern in London's Royal College of Physicians. The pale face, framed by long hair, bore a long moustache, a pointed beard and eyes like two black agates. The speaker began to address the attentive audience in well modulated tones, glancing only rarely at the manuscript before him. He spoke of the humour incarnadine, asserting that it coursed in perpetual motion as in a circle. Thus did William Harvey announce to the world that blood flows from the heart to the arteries and thence back to the heart through the veins. Thus did he lay to rest the ancient Galenic theory about two vascular systems—one, the venous, filled with blood produced by the liver; the other arterial, deemed to distribute a mysterious vital force throughout the body.

Blood is the great transporter, conveying oxygen from the lungs to the tissue cells and carbon dioxide from the tissues to the lungs, carrying food materials from the intestines to the tissues and ferrying waste products from the tissues to the kidneys and intestines. Hormones take passage in the blood to exert their subtle influence on some distant organ. Myriad corpuscular and chemical substances thread their way through the vascular network ever alert to the danger of invading germs or other noxious agents. Blood is also the great regulator, the liquid thermostat that adjusts body temperature, the living water system that maintains the fluid content of the body. Small wonder, then, at man's historic preoccupation with the vital torrent.

Against this background the Journal has assembled an important series of papers concerning the management of bleeding in dental patients. These articles, emanating from a conference held last September at the University of Alberta, serve to re-define the fundamental principles of haemostasis.

Bleeding is a constant peril in dental practice, a hazard that demands eternal vigilance, a contingency that requires prompt and effective action. But the dentist's treatment can only be as good as his appreciation of the factors that participate in the control of haemorrhage: the blood vessels, the platelets and the intricate chemistry of coagulation.

Dentistry's traditional predilection for techniques and materials is reflected by the touching faith which some dentists exhibit in various haemostatic agents. Though potentially beneficial in the prevention or control of bleeding, these substances are no panacea and can actually be hazardous if they are misused. For example, the effectiveness of thrombin depends upon the presence of fibrinogen in the blood. But thrombin, the most powerful local haemostatic, is

absolutely useless in a patient with afibrinogenaemia. Similarly, the promiscuous administration of vitamin K, adrenochrome or calcium in normal patients is completely unjustified. Such agents should only be used to correct an identifiable defect in the patient. Knowledge of the actions of haemostatic materials is therefore a minimum prerequisite to their successful employment.

Equally significant is the recognition that clotting and bleeding time are not reliable tests for measuring the efficiency of the haemostatic mechanism. A careful medical history will, in most instances, provide more information about bleeding tendencies of patients than routine bleeding and clotting times.

These topics, subjected to the most searching scrutiny by conference participants, are well covered in the published symposium. Because of their relevance to dental practice, the Journal is pleased to bring such up-to-date and factual information to a wider audience.

*And blood in torrents pour
In vain — always in vain,
For war breeds war again.*

John Davidson — War Song

Fluorides may protect against aortic calcification

Five research physicians from Harvard University may have stumbled upon a major new discovery—that generous concentrations of fluoride seemingly prevent aortic calcification. This totally unexpected finding emerges from their study of two groups of elderly men and women in North Dakota. The main objective was to assess the preventive effects of water-borne fluoride on osteoporosis.¹

Radiographs of the lumbar area were taken for each subject. These confirmed earlier reports that osteoporosis increases with age in a low fluoride area. Twice as many women had decreased bone density and two to six times as many in the low fluoride area had collapsed vertebrae, as compared with the high fluoride area.

Films of the lateral lumbar area of the spine also give an excellent view of the aorta. Happily, the investigators chose to include this variable in their studies. It came as a surprise that fewer calcified aortas were found in residents from the high fluoride area compared with the low. The differences were considerably more marked in men than in women. Aortic calcification is evidence of severe atherosclerosis to which men are more subject than women. In contrast, post-menopausal women are more affected by decreased bone density than men of the same age.

Concludes an editorial² in the *Journal of the American Medical Association*: "It appears as though the fluoride helps keep calcium deposited in the hard tissues of the body—teeth and bones—and not in the soft tissues. If these findings are confirmed, and the observation of less calcification in the aorta is

found to apply to other vascular tissues, especially the cerebral arteries, fluoride will indeed assume an important preventive role in two of the main diseases of ageing—osteoporosis and hardening of the arteries. But with all these exciting possibilities, let us not forget the proven role of fluoride in lessening tooth decay by 60 to 70 per cent via fluoridation of water.”

1. Bernstein, D. S., Sadowsky, N., Hegsted, D. M., Guri, C. D., and Stare, F. J. Prevalence of osteoporosis in high- and low-fluoride areas in North Dakota. *J.A.M.A.* 198:499, October 31, 1966.
2. More roach poison. *J.A.M.A.* 198:550, October 31, 1966. Editorial.

Le fluor protégerait contre la calcification de l'aorte

Un groupe de cinq chercheurs de l'Université Harvard a fait par hasard une découverte de première importance, à savoir que de fortes teneurs de fluor dans l'eau semblent empêcher la calcification de l'aorte. Les chercheurs ont relevé cette observation absolument inattendue à l'occasion d'une étude portant sur deux groupes d'hommes et de femmes âgés du Nord Dakota. Leur but principal était d'évaluer les effets préventifs du fluor contenu dans l'eau, contre l'ostéoporose.¹

Des radiographies de la région lombaire furent prises pour chaque sujet. Elles confirmèrent les rapports précédents qui ont établi que l'ostéoporose augmente avec l'âge dans les régions pauvres en fluor. Deux fois plus de femmes présentaient une densité osseuse diminuée et deux à six fois plus de sujets accusaient un tassement vertébral dans la région pauvre en fluor, par rapport à la région riche en fluor.

Les clichés de profil de la colonne lombaire mettent l'aorte en évidence. Par bonheur, les chercheurs décidèrent d'inclure cette variable dans leurs études. Ils furent surpris de trouver moins d'aortes calcifiées chez les habitants de la région riche en fluor que chez ceux de la région pauvre. Les différences étaient beaucoup plus marquées chez les hommes que chez les femmes. La calcification aortique est un signe d'athérosclérose grave, à laquelle les hommes sont plus sujets que les femmes. Par contre, les femmes ménopausées sont plus souvent affectées par la diminution de la densité osseuse que les hommes du même âge.

Un éditorial² du *Journal of the American Medical Association* conclut: “Il semble que le fluor contribue à garder le calcium dans les tissus durs de l'organisme — dents et os — et non dans les tissus mous. Si ces observations sont confirmées et si l'on découvre que la calcification moindre observée sur l'aorte est vraie aussi des autres tissus vasculaires, en particulier des artères cérébrales, le fluor sera appelé à jouer un rôle préventif important dans deux des principales maladies de la vieillesse — l'ostéoporose et le durcissement des artères. Mais cette perspective passionnante ne doit pas nous faire oublier que le fluor a déjà fait ses preuves, en diminuant la carie dentaire de 60 à 70 pour cent grâce à la fluoration de l'eau.”

1. Bernstein, D. S., Sadowsky, N., Hegsted, D. M., Guri, C. D. et Stare, F. J. Prevalence of osteoporosis in high- and low-fluoride areas in North Dakota. *J.A.M.A.* 198:499, 31 octobre 1966.
2. More roach poison. *J.A.M.A.* 198:550, 31 octobre 1966. Editorial.

Utilization of dental services by welfare recipients in a private dental office

A. Bodnarchuk, DDS, Edmonton, Alberta

The author reports on 52 welfare recipients who were eligible to receive subsidized dental treatment in his private practice and who required restorative, surgical, periodontic or complete prosthodontic treatment. Despite prior motivation by dental public health personnel and by the dentist within his own practice, 19 per cent of these patients accepted no dental treatment whatsoever and a further 31 per cent failed to complete a prescribed course of treatment. The author contends that income loss from welfare recipients attributable to unproductive chairside time and missed appointments may exceed income loss attributable to uncollected accounts from non-welfare recipients. He therefore suggests that fee schedules for welfare patients should match or exceed the regular fee schedule. Alternatively, deterrent fees should be charged by private practitioners who treat welfare patients. Such deterrent fees would reimburse the practitioner for emergency after-hour services and offset lost chairside time and lost income due to missed appointments.

■

L'auteur étudie le cas de 52 patients bénéficiant de l'assistance sociale qui auraient pu recevoir dans son cabinet privé un

traitement dentaire remboursable et qui avaient besoin de restaurations de chirurgie, de traitements périodontaires ou de prothèses complètes. En dépit des encouragements prodigués par le personnel de l'hygiène dentaire publique et par le dentiste lui-même à son cabinet, 19 pour cent de ces patients n'acceptèrent aucun traitement, 31 pour cent ne terminèrent pas le traitement prescrit. L'auteur affirme que la perte de revenu occasionnée par les patients de l'assistance publique, qui font perdre des heures de travail et ne respectent pas les rendez-vous, peut être supérieure à la perte de revenu causée par les patients qui ne bénéficient pas de l'assistance sociale et qui ne paient pas leur compte. Il est d'avis que le tarif des honoraires pour les patients sous assistance sociale devrait être égal ou même supérieur à l'échelle d'honoraires normale. Autrement, le dentiste en exercice privé qui traite des patients sous assistance sociale devrait demander des honoraires de dissuasion. Ces honoraires de dissuasion les dédommageraient des soins d'urgence dispensés en dehors des heures de travail et compenseraient les heures de travail perdues ainsi que les pertes de revenu occasionnées par les rendez-vous non respectés.

Governments, service organizations and individuals are becoming increasingly pre-occupied with the problem of providing adequate health services for all people. Concern is frequently expressed regarding the lack of dental care among low income groups and financial incapacity is often blamed for this.¹ To help combat this problem, some dental treatment is rendered free of cost to people in Alberta who receive various forms of welfare assistance from the government.

Casual observation of these patients aroused the suspicion that they differ from non-welfare patients in their attitudes toward dental health and the utilization of available treatment services. Certain previous findings reported in the literature tend to support this assumption. For instance, in a study of caries experience of children in Buffalo, Szejda² has observed that children of the low socio-economic strata exhibit the greatest incidence of untreated dental disease. According to the 1960 Canadian Sickness Survey,³ (1) low income groups received less dental care per capita than either medium or high income groups; (2) children under 15 years of age from low income groups received the least dental treatment; and (3) because dental treatment of patients below age 15 was usually prophylactic, the lack of early preventative care could lead to a greater need for extractions and dentures at an early age. Moreover, in a study correlating economic level with dental status, voting behaviour in a fluoridation plebiscite and interest response to a poliomyelitis immunization program in a suburb of Edmonton, MacRae and Zacherl⁴ reported a notable lack of interest in these health measures among low income groups.

This investigation was undertaken in a private dental office:

1. To determine what percentage of welfare patients who came to a private dental office for treatment actually completed a specified treatment program;

2. To compare the above with a group of non-welfare patients who came to the same dental office;

3. To compare the need for full-mouth extractions and complete dentures by patients under 17 years of age among welfare and non welfare cases;

4. To determine the number and nature of after-office-hour emergency services requested by, and rendered to, welfare and non-welfare patients;

5. To determine the time lost in a private dental practice as a result of missed appointments by welfare and non-welfare patients.

This intention of this study was to establish the nature of the disruptions which occur in a private dental office as a result of treatment rendered to people who receive the benefits of government subsidized dental care.

METHOD

Fifty-two welfare patients participated in this study. Included among them were 41 child and seven adult patients who would not incur any cost for treatment rendered. These patients required restorative, surgical or periodontic treatment. There were also four child patients whose parents were welfare recipients. These children required extraction of all their teeth and dentures. Their parents would have had to pay a part of the cost of these dentures.

Three hundred non-welfare patients also participated in the study. These were patients who requested either complete mouth treatment or just fillings when they attended for their first appointment. Non-welfare patients who requested single tooth extractions or who required orthodontic or partial prosthodontic treatment were excluded.

Participating patients attended the same dental office during the same six month period. By virtue of the selection procedure, the range of services to be performed was almost the same in both groups. The only difference was that welfare patients were not required to pay for any services rendered.

A uniform office procedure was followed with all patients. Personal, dental and medical histories were compiled and dental radiographs were taken at the first appointment. Examination, diagnosis and personal consultations followed at the second appointment. Dental treatment was rendered at subsequent appointments.

TABLE 1 Utilization of dental services in an Edmonton private practice.

	Welfare group	Non-welfare group
Patients	52*	300
Patients who did not return for treatment after radiographic examination, consultation, diagnosis, or completion of part of a proposed treatment plan	26 (50%)	4 (1%)
Patients below age 17 who required complete-mouth surgery and dentures	4	1
Requests for after-office-hour emergency services	3	1
Wasted chairside hours resulting from missed appointments	52	13

*Government subsidization for dental care was available to these welfare patients for at least six months prior to their visit to the dental office.

All patients received a telephone reminder one day in advance of their appointment. Any patient who missed an appointment was telephoned by the dental assistant who arranged another appointment. Treatment was discontinued for patients who missed two appointments.

Data from the 52 welfare patients were compiled and analysed. The results were compared to a similar analysis of data from the 300 non-welfare patients.

RESULTS

A comparative summary of results for the two groups is shown in Table 1.

Twenty-six welfare patients did not return for dental treatment after radiographic examination, diagnosis and consultation, or completion of part of a proposed treatment plan. Six of these patients failed to appear after radiographic examination; four failed to appear after radiographic examination, diagnosis, and consultation; and 16 discontinued treatment after radiographic examination, diagnosis and consultation, and partial treatment.

Thus, 50 per cent of the welfare group remained in need of dental care and 19 per cent accepted no dental treatment whatsoever.

DISCUSSION

Alberta's local and provincial governments subsidize dental care for welfare

patients only. Dental education and motivation are, however, provided by a city clinic to all Edmonton school children. Written notifications of dental defects, as determined by a dental hygienist and/or an examining dentist, are forwarded to parents.

The private dental practice was located in a medium to low socio-economic suburb of Edmonton. Data and discussion of this report relate only to the experiences of one private dental practitioner in one dental office.

Government subsidization of dental care by itself does not necessarily encourage or result in more comprehensive dental care of people who may receive such benefits. This is well substantiated by two findings in this study. Firstly, 50 per cent of the welfare patients terminated their request for dental service prior to completion of treatment whereas only 1 per cent of the non-welfare group fell into this category. Secondly, the number of patients below age 17 who required complete-mouth extractions and complete-mouth prosthesis was 23 times greater in the welfare group than in the non-welfare group (given the same number of people in each group).

Utilization of available dental services may be increased by government subsidy and a sound educational program. Such utilization of services may, however, be partly dissipated through examination, diagnosis, consultation, and education. Wasted chairside time increased noticeably when dental public health personnel visited the area and instituted a dental education program, a part of which was

to encourage welfare patients to seek dental care because costs were not a deterrent. Many welfare patients were well motivated by the program and sought dental treatment. However, 19 per cent of the welfare group declined treatment despite further efforts within the office to induce them to solicit dental care. In dealing with this sub-group of welfare patients it seems that stringent supervision is essential (1) to preserve their dental health, (2) to avoid wasting money on examination, diagnosis and consultation with no subsequent treatment, and (3) to prevent abuse of available dental services.

Welfare patients tend to abuse available emergency services. After-office-hour emergency service was requested and utilized 18 times more frequently by the welfare group than by the non-welfare group (given the same number of people in each group). The welfare emergencies could have been avoided whereas the one non-welfare emergency was considered justified. Histories of the three welfare and the one non-welfare after-office-hour emergencies substantiate this belief.

1. A (welfare) mother could not come for dental treatment during regular office hours because her baby sitter was working and she refused to bring her two children with her to the office. Consequently, a severely aching tooth had to be extracted on a Saturday at 10:30 a.m.

2. A (welfare) mother forgot to obtain prescribed antibiotic and analgesic therapy for a child suffering from an acute abscess one day preceding the emergency. Later, she could not leave her children alone. At 10:30 p.m. of the following day the child was in severe pain and emergency dental service had to be rendered.

3. A (welfare) mother cancelled a child's previous appointment for extraction of an occasionally aching tooth. Suddenly, on a Friday at 10:00 p.m. the pain previously associated with the tooth became severe and emergency dental service had to be rendered.

4. An elderly (non-welfare) male patient requested extraction of seven teeth during one visit to reduce required convalescence time and to facilitate earlier insertion of a denture for aesthetic

reasons. The seven teeth were extracted, alveolar bone was trimmed, and the surgical site was sutured. Later, postoperative haemorrhage developed and the surgical site had to be resutured.

The three welfare patients were questioned as to who would pay for emergency services rendered. Invariably, they replied that "the welfare would pay for it" even under the circumstances as established. It thus appears that financial irresponsibility as well as personal irresponsibility coexisted in these welfare patients. Furthermore, some of these patients needlessly and inconsiderately imposed their demands for emergency dental services.

A private dental practice may be adversely affected by an increase in missed appointments resulting from increased referral of welfare patients. This fact is well substantiated by the almost incredible fact that 52 chairside hours were lost in the treatment or attempted treatment of 52 welfare patients.

This raises a very important question regarding the structure of fee schedules in any government-supported dental care program. In some welfare dental programs, under the direction of the dental profession and financially supported by government, fees are prorated at 75 per cent of the established fee. The prorated fee schedule is held to be reasonable because there is no loss of income from uncollected accounts. But this argument becomes invalid when the number of welfare patients is high and lost income attributable to unproductive time and missed appointments exceeds lost income attributable to uncollected accounts from non-welfare patients.

This problem can be resolved in three different ways:

1. Fee schedules for welfare patients could match or exceed regular fees.

2. Deterrent fees could be charged by private practitioners who treat welfare patients. Such deterrent fees would reimburse these practitioners for emergency after-hour services and offset lost chairside time and lost income due to missed appointments.

3. A new incentive could be introduced to encourage the acceptance of more complete dental care by welfare recipients.

A system could be adopted whereby cards authorizing dental treatment would be issued to welfare recipients who demonstrate an established need and specifically request such cards. Subsidy of dental care would commence three months after issuance of a card. Failure to have all totally subsidized treatment completed annually would (a) result in cancellation of the card, (b) necessitate re-application by the patient or guardian for a new card, and (c) interrupt continuity of the subsidy until 90 days after the issuance of the new card.

CONCLUSIONS

The following conclusions may be drawn from this study of utilization of dental services by welfare and non-welfare patients:

1. Government subsidization of dental care does not necessarily encourage more complete dental care for people who receive such benefits.

2. Utilization of available dental services may be increased by government subsidization and a sound educational program. Examination, diagnosis, consultation, and educational services may, however, be partly wasted if there is delayed or incomplete acceptance of dental treatment.

3. Some people who benefit from subsidized dental care tend to abuse available dental emergency services.

4. A private dental practice may be adversely affected by increased referral of welfare patients who fail to keep dental appointments.

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When attending the CDA-ODA centennial convention in Toronto this May take a trip through the grounds of the University of Toronto. Convocation Hall is used for graduation ceremonies, major academic events, lectures and concerts.

The myofunctional therapist's role in paedodontics

Daniel Garliner, Buffalo, New York

Abnormal swallowing during the developmental years has an injurious effect on muscle balance and function and occlusion. Myofunctional therapy can assist the paedodontist by improving the patient's occlusion or by preparing the patient for later orthodontic treatment. It can aid the orthodontist by lessening the time required for orthodontic treatment, by making retention of the corrected occlusion more stable and by improving the prognosis for absolute retention. Correction of deviate swallowing permits the dentist to complete his treatment with more assurance of success.

Un réflexe de déglutition anormal qui persisterait pendant la période de croissance aurait certainement un effet nuisible sur l'équilibre musculaire, la fonction et l'occlusion. La thérapeutique myofonctionnelle peut aider le pédodontiste à améliorer l'occlusion du patient ou à le préparer pour un traitement orthodontique à venir. Elle peut aider l'orthodontiste en permettant de raccourcir la durée du traitement, ou en permettant une plus grande stabilité de l'occlusion qui vient d'être corrigée et à améliorer le pronostic. La correction du réflexe de déglutition permet au dentiste de faire son traitement avec de meilleures chances de succès.

"As the twig is bent so grows the tree" is a common expression. Myofunctional therapists firmly believe that "as the oral muscles function so grows the mouth." Clinical evidence continues to show that the developmental years are

the important years.¹⁻⁷ Correct habits contribute to proper growth. Deleterious habits contribute significantly to poor growth patterns and almost inevitably to poor dental health.^{8,9} It is the inevitability of this process that makes an understand-

ing of the problem so significant. The adult who gives evidence of dental distress could be the child with the undiagnosed swallowing abnormality and poor oral habits of many years ago.

The importance of correct muscle balance and function has been known for many years.^{6-8,10,11} Yet, many practitioners have only paid lip service to its significance as an important adjunct of dental care. It took a series of frustrations in orthodontic therapy to stress this importance. The practising orthodontist learned early that his results could deteriorate if a destructive swallowing habit were allowed to persist. If he did not eliminate the abnormal swallowing pattern, malocclusion would recur.^{12,13} This prompted dentists to reconsider the following basic concepts:

- (1) That teeth move in relation to the balance of the soft tissue;
- (2) That the normal relationship of teeth is in occlusion; and
- (3) That deviation from normal occlusion invariably leads to dental problems.

Prosthodontists and periodontists have also enlisted the aid of the myofunctional therapist for their specific problems. The myofunctional therapist has therefore had to acquaint himself with the problems of prosthodontics, periodontics and oral surgery, as well as those in orthodontics which are related to myofunctional therapy.^{4,5}

DIAGNOSIS

It is necessary to understand the normal swallowing pattern before one can fully comprehend the destructive force of deviate swallowing. In normal swallowing, the tip of the tongue glides against the rugae in the anterior part of the mouth, the midpoint of the tongue rests against the central part of the hard palate, and the back of the tongue tips at a 45 degree angle to permit the bolus to enter the digestive tract. The force of swallowing is directed against the rugae and the bolus is literally propelled along the tongue into the digestive tract.

Deviate swallowing presents a totally different stress picture. The tip of the tongue is against or between the teeth, the

midpoint of the tongue is collapsed, the back of the tongue is raised against the palate, and the resultant anterior force is directed against the teeth. It is this repeated constant anterior pressure of 1½ to 6 lbs. exerted for one-fifth to one-tenth of a second approximately two thousand times a day which is a causative factor in malocclusion.^{12,13}

Diagnosis of deviate swallowing is not difficult. Indeed, if a simple pattern of observation is followed, it is often possible to make a correct diagnosis without asking the patient to open his lips. External signs of deviate swallowing are tongue protrusion and an opening of the lips when the patient is in repose; habitual mouth breathing; thumb, fingers or lip sucking; thick upper lip and rounded lip structure (Picard's bottle mouth); rigid mentalis muscle; interdental or lateral 'S' lisp when the patient speaks; and facial grimace during the act of swallowing. If enough of these features are present, physical examination of the patient will either confirm or negate improper swallowing.

Oral examination should reveal:

1. Whether the palatal arch is high and narrow;
2. Whether the rugae are sharply defined (if so, this indicates that the tongue has not been gliding against this area during the swallowing act as would normally occur in normal deglutition); and
3. The patient's occlusion.

We now test the actual swallowing act by asking the patient to swallow as two fingers are placed on the mandible and the lip is pulled down. Invariably the tongue is found thrusting into the area where there is a poor occlusal relationship. It soon becomes apparent to the examiner that the constant pressure of deviate swallowing has not been exaggerated, and that there is consistently oral damage in those areas where the tongue is thrusting.^{3-5,12}

The importance of deviate swallowing and the validity of the diagnostic procedures noted here are amplified by a comparative analysis of the resultant occlusal problems in children and adults. The destructive effects of incorrect swallowing do not disappear spontaneously with advancing age. Figure 1 illustrates the sim-

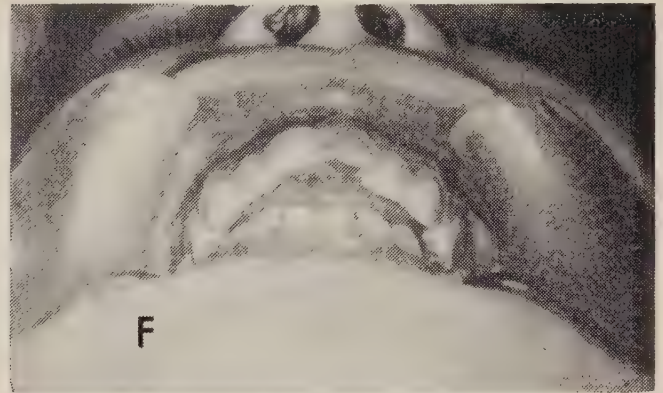
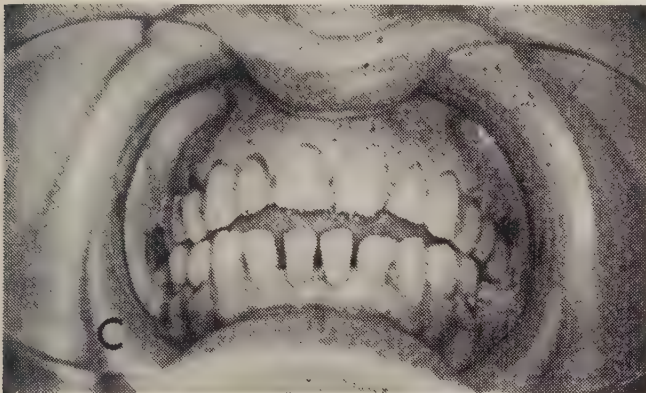
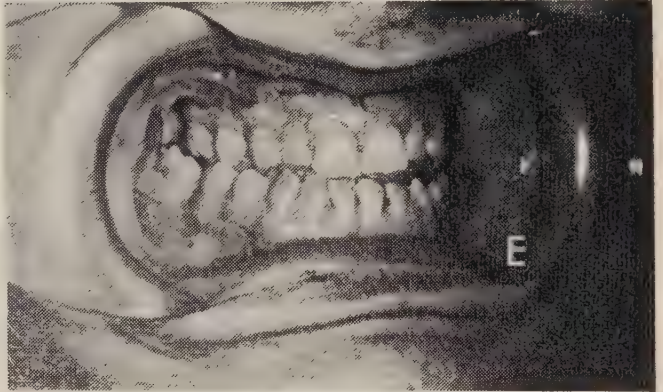
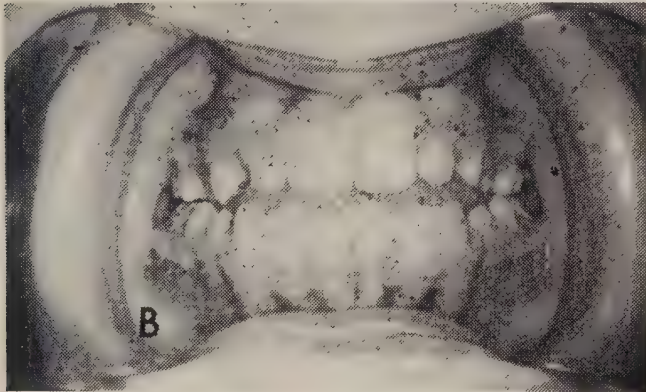
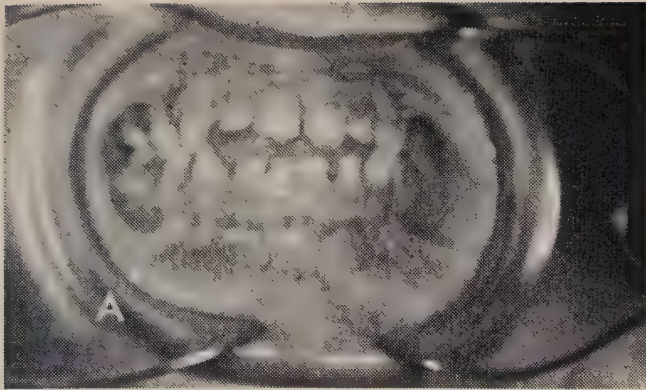


FIGURE 1 Occlusal effects of deviate swallowing are similar at various age levels. Patients do not 'outgrow' this problem. A, four year old child. B, 11 year old child. C, middle aged adult. D, 12 year old child. E, adult. F, five year old child. G, adult.

ilarity of occlusal problems resulting from deviate swallowing in children and adults.

TREATMENT

There are three distinct areas of differential tongue movement in normal and abnormal swallowing: the anterior part of the tongue, the midpoint of the tongue, and the posterior part of the tongue.

The myofunctional therapist must al-

ways consider this differentiation of muscular movement if treatment is to be successful. He must relate his entire therapeutic regime to muscle response. This includes lip and cheek as well as tongue musculature.

The therapist must also be able to motivate his patient. Treatment will fail



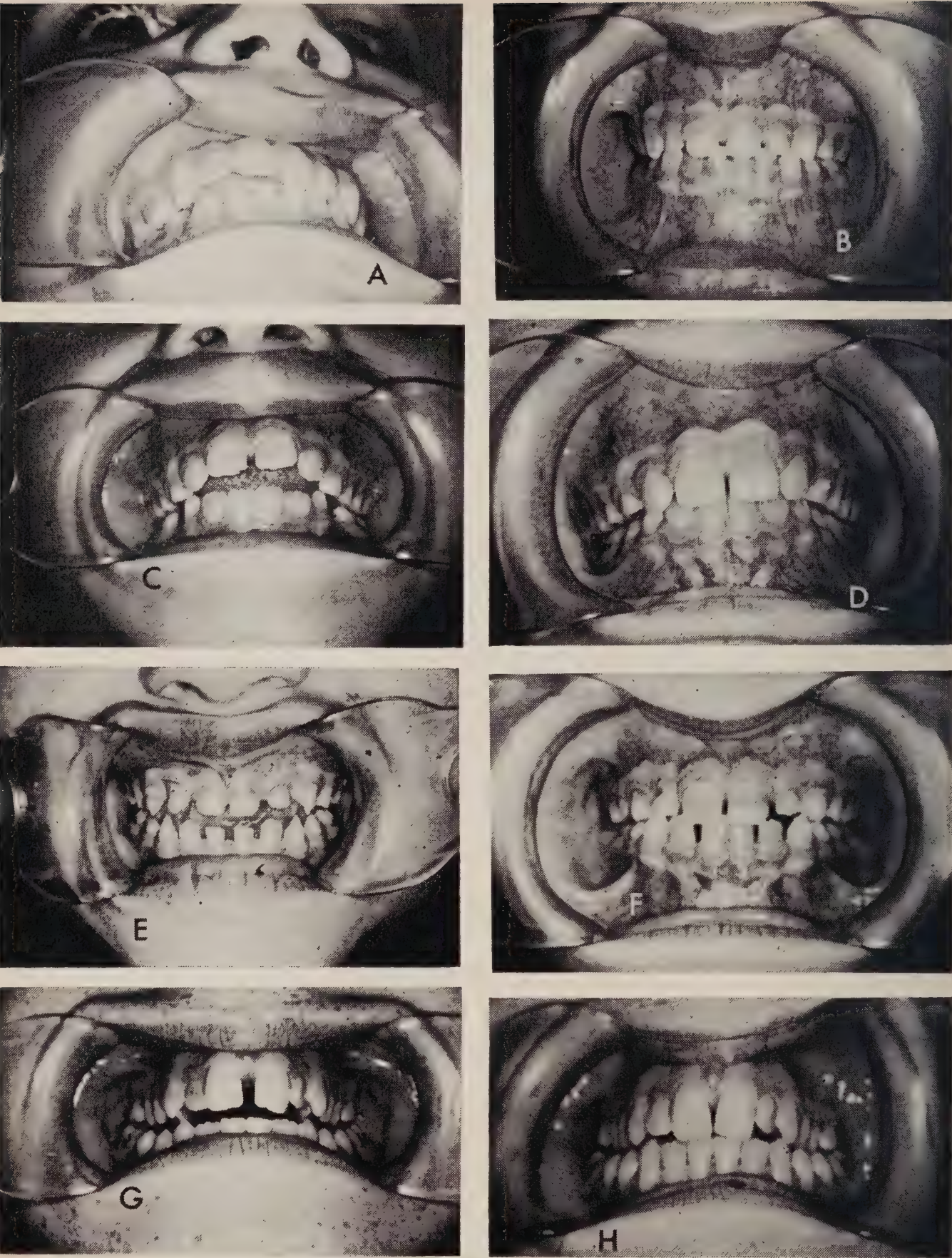


FIGURE 2 Various examples of myofunctional therapy as an aid to interceptive orthodontic treatment. A-B, time lapse six months. C-D, time lapse 21 months. E-F, time lapse 38 months. G-H, time lapse 3½ months.

unless the patient desires to accomplish the new swallowing pattern. The therapist must be prepared to devote considerable

time and effort to each therapeutic session. Each procedure must be thoroughly understood by the patient as well as the

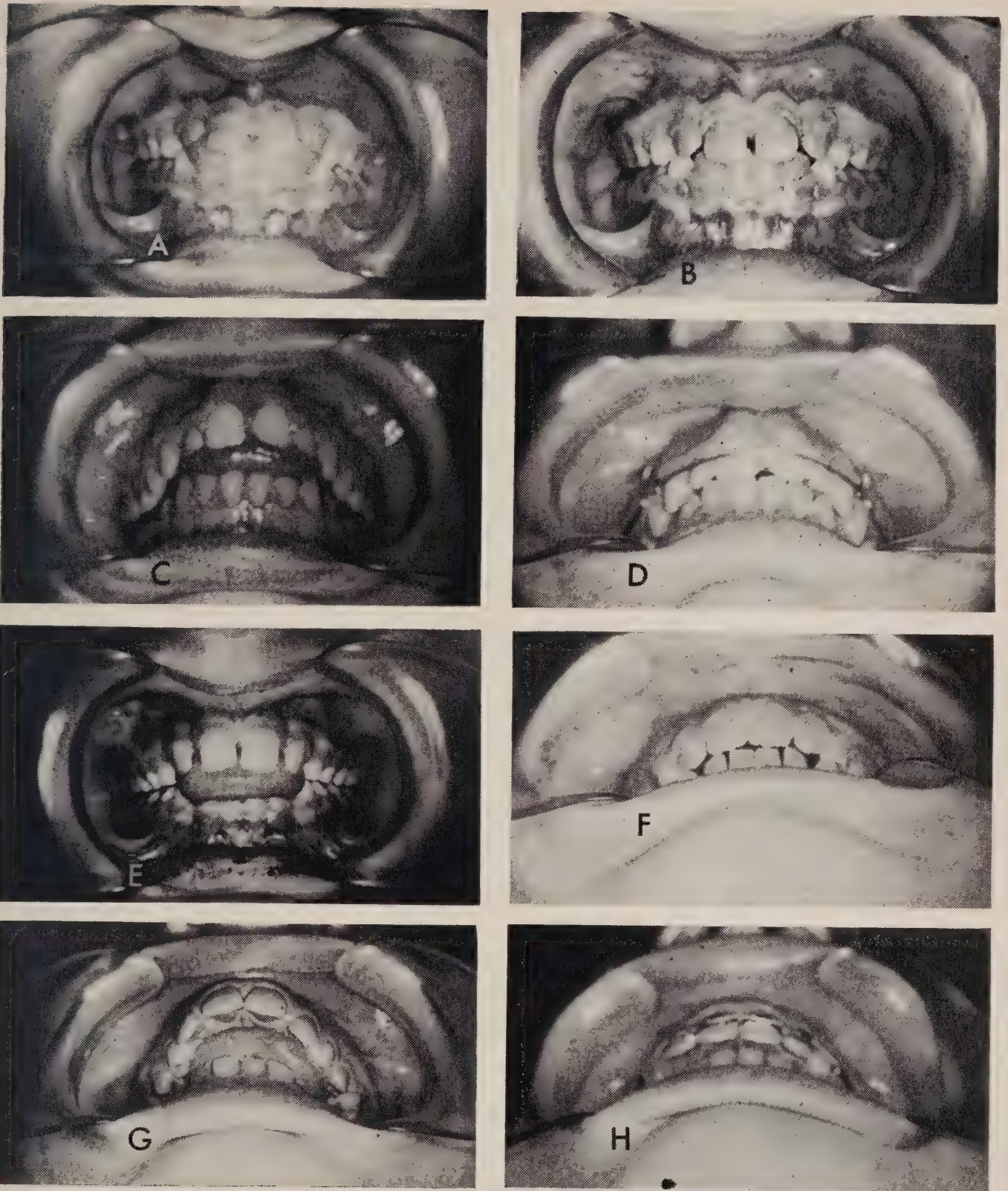


FIGURE 3 Various examples of myofunctional therapy as an aid to orthodontic treatment. A-B, time lapse 11 months. C-D, time lapse 5½ months. E-F, time lapse 16 months. G-H, time lapse six months.

parent who must continue to work with the child at home. The child must be made aware of the importance of the problem. He must be made to realize that success can only be obtained through persistent and cooperative practice. He must be guided, not dragged, to a successful solution of the problem.

The therapist must be able to relate the oro-facial musculature to the correct swallowing pattern. He must know how to strengthen the masseter and orbicularis oris muscles. He must recognize an overdeveloped mentalis muscle.³ He must understand isometric techniques for strengthening the oro-facial musculature.

CONCLUSION

Myofunctional therapy can assist the paedodontist by improving the patient's occlusion (Figure 2) or by preparing the patient for orthodontic treatment. It can aid the orthodontist by lessening the time required for orthodontic treatment, by making retention of the corrected occlusion more stable and by improving the prognosis for absolute retention (Figure 3). Correction of deviate swallowing permits the dentist to complete his treatment with more assurance of success.

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Are you going to the CDA-ODA centennial convention in Toronto May 14-17? If so, don't miss seeing the grounds around York University. This solar clock is the focal point of the quadrangle which will emerge south of the Farquharson Life Sciences Building.

Student training in the utilization of dental assistants at the University of Toronto

C. E. Purdy, DDS, Toronto, Ontario

A recent survey shows that most dentists who graduated from the University of Toronto in 1964 and 1965 now tend to practise in a seated position and utilize a full-time assistant for chairside duties. This is attributed to a pilot program designed to teach students in the effective use of the chairside assistant. The program began in the fall of 1963.

Une enquête que l'on vient de terminer établit que la plupart des dentistes qui ont terminé leurs études à l'Université de Toronto en 1964 et 1965 ont tendance, dans leurs bureaux, à travailler assis et à se faire aider à la chaise par une assistante à temps complet. On attribue cette situation à un programme qui a été mis en oeuvre à l'automne 1963, et qui avait pour but de familiariser les étudiants avec l'emploi d'assistante.

According to the report of the Royal Commission on Health Services (1964),¹ "the present population: dentist ratio, which indicates that 3,108 Canadians are dependent on one dentist, is inadequate to meet present needs." Before a substantial improvement in the existing ratio is accomplished, it seems probable that there will be a gradually increasing treatment demand on our professional resources.

The introduction of improved techniques and time-saving equipment during the past decade has contributed much toward the increased quantity of treatment rendered by the individual dentist. There is also a noticeable trend toward greater utilization of auxiliaries who can free the dentist from many menial tasks and thus permit him to concentrate on procedures that only he is qualified to perform. The average dentist today can render 50 per cent more treatment for the public than was possible only 10 years ago. Nevertheless, when 47 1964 University of Toronto graduates — all of them in general practice in Ontario — answered a recent questionnaire, 44 of the respondents (93 per cent) already had as heavy a patient load

as they could manage and preferred not to see more patients daily.

Although many dentists will continue to practise in the manner to which they have become accustomed, others have shown keen interest in methods of work simplification and have instituted changes for the benefit of themselves and the public. It is in the area of auxiliary utilization that the average dentist can most conveniently and effectively implement an improved service for more people and at the same time make dentistry a pleasanter occupation. This does not imply an expansion of duties but a fuller use of existing auxiliaries by delegating to them all duties that they can be trained to legally perform.

Dental students graduated in the past with little or no training or experience in the use of auxiliaries. They probably visualized the need for an assistant to look after numerous tasks in a busy practice but they had very little conception of the value of an extra pair of hands at the chairside to aid in operative procedures. With growing practices and the desire to serve more people, some dentists

discovered additional duties that could be delegated to auxiliaries. Another assistant was employed and through trial and error effective teamwork was developed in many dental offices. Nevertheless, many dentists continue to perform chairside tasks that could and should be delegated to an auxiliary. Undergraduate training and experience are necessary to familiarize the next generation of dentists with the scope of duties and manner of employment of the chairside assistant in 'Four Handed Dentistry.'

Accordingly, the Faculty of Dentistry, University of Toronto, initiated a pilot study in the fall of 1963 to determine the feasibility of training dental students in the effective use of a chairside assistant. Student reaction was favourable and the results, though limited in scope, were

highly encouraging. The program was therefore gradually expanded. Today, sufficient locations are established to accommodate eight students daily for training in the utilization of chairside assistants and the program is now recognized as a permanent and important part of undergraduate training at the University of Toronto. In the United States, the Public Health Service has made funds available to assist all dental schools in the establishment of such programs. Moreover, the Council on Dental Education of the American Dental Association has included such training as a requirement for dental school accreditation.

All students are assigned to work with trained assistants on selected days during their third and final years. Lecture room instruction with the use of visual



aids is complemented by clinical instruction. Treatment planning is emphasized and the preplanned treatment recorded in order that the chairside assistant may have all requirements in readiness for the operation to be undertaken. Both student and assistant are encouraged to remain seated on opposite sides of a reclined patient during treatment procedures.

Students are encouraged to keep their eyes on the field of operation and their hands in an operating position as much as possible. A silent signal system, such as a nod of the head or a slight withdrawal of the instrument from the patient's mouth, is all that is required to indicate that the student is ready for the next instrument or a change of burs in the hand-piece. The assistant is trained in the recommended order of procedure for various operations and generally anticipates the student's needs by having the correct instrument ready for placing in his hand when needed. Not only does the assistant take over most activities outside the mouth; she also assists the student while he works within the mouth by retracting tissues, operating the oral evacuator and spray syringe and maintaining a clean field of operation. Students are furthermore instructed in patient positioning for maximum operating convenience and maintenance of good posture.

During the pilot study year which involved the 1964 graduates, limited facilities permitted only three half days of clinical training per student. Gradual expansion of the training permitted an allocation of five training days for 1965 graduates. The 1966 graduating class was allocated nine training days per student and with present facilities future graduates will have the opportunity of at least 12 days clinical training with chairside assistants before graduation.

Despite the limited training opportunities for the 1964 and 1965 graduates, a questionnaire was sent to these graduates approximately two years and one year respectively after they were licensed by the Royal College of Dental Surgeons of Ontario. The questionnaire was intended to aid in evaluating the dental assistant utilization program and the influence of associated teaching. It was designed to invite constructive criticism of the re-

spondents' undergraduate training and to include comments concerning their adopted method of practice. One hundred and twelve questionnaires were sent to RCDS listed graduates of 1965 and 106 to listed graduates of 1964. By May 15, 1966, 47 completed returns were received from the 1964 graduates and 51 returns from the 1965 graduates engaged in general dental practice in Ontario. The level of response was actually somewhat better than indicated by these figures because some questionnaires failed to reach listed dentists on account of changes of address or other errors. Thirteen questionnaires were either returned to the sender or improperly completed so as to preclude accurate interpretation. Thirty-six (76.5 per cent) of the 1964 respondents and 33 (64.7 per cent) of the 1965 respondents conducted their own private practices. The balance were associated with or employees of another dentist or agency. These graduates were well distributed in communities of various size throughout the province. Table 1 depicts the size of the community where the 98 respondents practise or are employed.

While working with chairside assistants, students are encouraged to remain seated on a low stool. Lounge-type dental chairs are provided at the training areas to facilitate this method of work. Replies from 1964 graduates indicate that 33 of 36 who conduct their own practices use the lounge-type dental chair whereas all 1965 graduates who conduct their own practices use it.

The returns also reveal an increasing trend toward practising in a seated position. Graduates were asked to indicate the percentage of their operating time

TABLE 1 1964 and 1965 University of Toronto graduates who responded to the questionnaire on dental assistant utilization.

Community size	Graduates		
	1964	1965	1964 and 1965
Under 25,000	11	17	28.6%
25,000-100,000	13	16	29.6%
100,000-500,000	10	7	17.3%
Over 500,000	13	11	24.5%

TABLE 2 1964 and 1965 University of Toronto graduates who practise in a seated position.

Proportion of operating time seated	Graduates	
	1964	1965
90-100%	44.4%	51.6%
75%	16.7%	27.3%
50%	13.9%	12.1%
25%	16.7%	6.0%
Nil	8.3%	3.0%

that they spent sitting down. The replies from all graduates reporting are depicted in Table 2.

In March 1964, the Bureau of Economic Research of the Canadian Dental Association conducted a survey of dental practice conditions for the year 1963.² Questionnaires were completed and returned by 44.3 per cent of all Canadian dentists. Included were 46.9 per cent of Ontario dentists who responded. The returns indicated the number and type of auxiliary employees on a full- or part-time basis.³ Similar information was gained from the returns completed by 1964 and 1965 Toronto graduates which represented at least 46.4 per cent of those conducting a general practice in Ontario. This representation suggests a valid comparison except for the influence of the trend toward greater use of auxiliaries during the two year interval.

Table 3 compares the information gained from the CDA survey with that of our own survey respecting the use of full-time dental assistants in dental practice.

The 1963 CDA survey did not reveal the number of employees categorized as full-time chairside assistants nor the per-

TABLE 3 Dentists who do not employ an assistant full-time.*

All Canadian dentists, 1963	19.9%
Ontario dentists, 1965	18.0%
All dentists age 25-29, 1963	27.8%
Canadian graduates, 1960	27.3%
Canadian graduates, 1961	27.4%
Canadian graduates, 1962	31.0%
Toronto graduates, 1964	2.1%
Toronto graduates, 1965	1.9%

*Includes full-time employees designated as secretary-receptionists where no other assistant is employed and who perform certain functions of the dental assistant.

TABLE 4 Proportion of operating time during which 1964 and 1965 University of Toronto graduates are assisted at the chair.

Percentage of operating time with assistance at the chair	Percentage of 1964 and 1965 graduates
75-100%	28.6%
50-75%	16.4%
25-50%	30.6%
Less than 25%	22.4%
Nil	2.0%

centage of operating time that the dentist was assisted at the chair. Our returns indicate that 25 per cent of recent Toronto graduates (1964-65) employ a full-time assistant for chairside duties. Table 4 reflects the percentage of operating time that 1964 and 1965 Toronto graduates report as being assisted at the chair.

The results of our own survey are highly encouraging. They suggest that we are fulfilling the aim of promoting greater use of auxiliaries in order to provide dental treatment services for more people. It is gratifying to note that only one member of each of the 1964 and 1965 graduating classes does not employ an assistant as compared to a national average of 31 per cent two years earlier. Moreover, 64 per cent of the returns indicate a preference for an additional auxiliary in the office and 82 per cent of the respondents feel that dentists in general should delegate more duties to auxiliaries. Although the great majority consider their undergraduate experience helpful in training and utilizing an assistant in their own office, 77.7 per cent of the 1964 graduates and 62.5 per cent of the 1965 graduates claim that the undergraduate training time was inadequate.

It is hoped that expanded and improved training facilities will encourage future graduates to employ auxiliaries to their maximum potential and thereby aid in satisfying the dental health requirements of an expanding Canadian population.

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FIGURE 1 Proéminence des os frontaux et dépression à la suture métopique.



Dysostose cléido-crânio-dentaire: présentation d'un cas

Cleidocranio-dental dysostosis: case report

Denis Forest,* DDS et J. N. Fontaine,† DDS, Montréal, Québec

La dysostose cléido-crânienne est une maladie rare, apparemment héréditaire et d'étiologie incertaine, caractérisée par des anomalies du crâne, des mâchoires, des dents et des clavicules. Les fontanelles sont ordinairement demeurées ouvertes. Les os frontaux et pariétaux sont proéminents. Les clavicules sont absentes complètement ou en partie. La voûte palatine est profonde et étroite. Il y a toujours des anomalies dentaires, soit dans le nombre, la forme ou l'éruption des dents; les racines peuvent être courtes et malformées. La présence de dents surnuméraires incluses est fréquemment décelée par des examens radiographiques. L'article rapporte un cas et l'appellation nouvelle de dysostose cléido-crânienne dentaire semble plus descriptive.

Cleidocranial dysostosis, a rare disease of unknown aetiology, is often hereditary. It is characterized by abnormalities of the skull, jaws, teeth and clavicles. The fontanelles usually remain open; frontal and parietal bones are prominent; the clavicles are absent or partially absent; the palate is usually high, narrow and arched. There is always prolonged retention of the deciduous teeth and subsequent delay in the eruption of permanent teeth. The roots are often distorted. A common feature is the presence of numerous unerupted supernumerary teeth which are found on radiographic examination. Such a case is here reported. The authors stress the importance of incorporating the word 'dental' in the name of this disease: cleidocranio-dental dysostosis.



FIGURE 2 Forme conique d'un doigt.

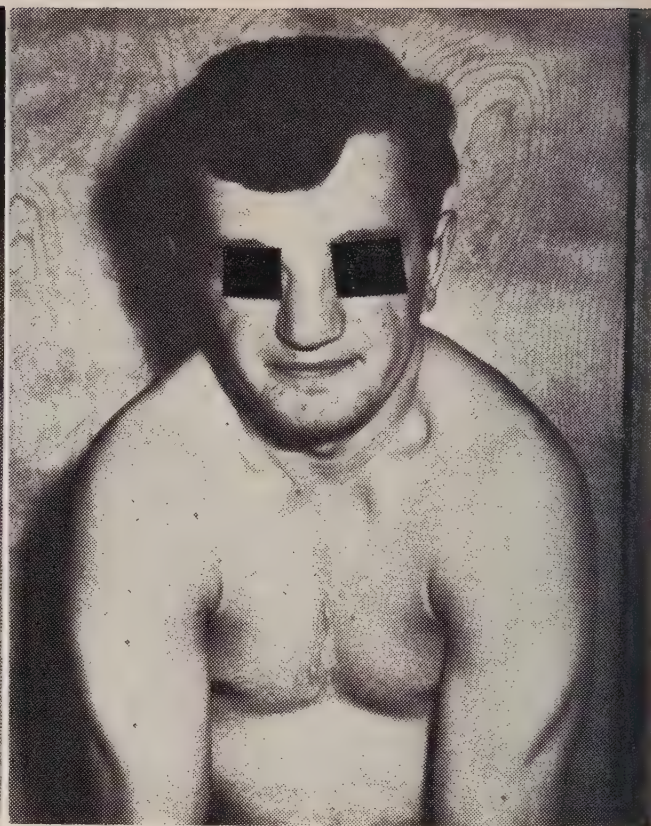


FIGURE 3 Les clavicules sont mal formées et permettent un mouvement exagéré des épaules.

La dysostose cléido-crânienne est une anomalie du développement qui affecte d'une façon caractéristique les os du crâne, les maxillaires, les dents, les clavicules et parfois les os longs. Cette maladie est ordinairement héréditaire et transmise selon un caractère mendélien dominant; c'est-à-dire qu'il suffit qu'un seul des parents soit porteur du gène particulier pour que la maladie soit transmise à un ou plusieurs des descendants.

La littérature, cependant, rapporte souvent des cas qui semblent apparaître spontanément ou d'une façon sporadique. Ainsi Soule,¹ au sujet de 323 cas, rapporte 125 cas d'incidences sporadiques, les autres cas coïncidant avec une histoire familiale. Anspach et Huepell² ont suggéré pour ces cas la possibilité d'une transmission sur une base récessive. Gorlin et Pindborg³ semblent plutôt croire que ces cas représentent de nouvelles mutations.

Actuellement, il est encore impossible de reconnaître la tare génétique qui serait la cause de cette maladie, mais on semble invoquer un traumatisme intra-utérin

survenant au cours de la sixième ou huitième semaine de vie embryonnaire. Jansen⁴ croit qu'une contraction de l'amnion causerait une augmentation de la pression du fluide amniotique tandis que Bauer⁵ semble plutôt favoriser la théorie mutationnelle.

Cette maladie affecte aussi souvent les hommes que les femmes et on ne note aucune différence raciale. On a cru pendant un certain temps que la dysostose cléido-crânienne affectait seulement les os d'origine membraneuse; toutefois, on est maintenant d'avis que le squelette entier peut être affecté; même les os d'origine cartilagineuse sont affectés dans leur développement: on en a la preuve par la courte stature des patients atteints. Kalliala et Taskinen⁶ ont fait une excellente revue des différentes anomalies rencontrées au niveau du squelette.

D'une façon générale la dysostose cléido-crânienne se caractérise par les signes suivants:

A. Au point de vue clinique

1. la tête est large; les os frontaux et pariétaux sont proéminents;

2. la suture sagittale forme une dépression qui donne au crâne une apparence aplatie;

3. les muscles du cou sont bien développés et courts; les épaules sont hypermobiles;

4. des anomalies se rencontrent souvent au niveau de la colonne vertébrale, du pelvis, des os longs et des os de la main;

5. le maxillaire supérieur est sous-développé; la mandibule est fréquemment proéminente et simule un profil de prognathe;

6. la voûte palatine est profonde et étroite;

7. il y a toujours anomalies dentaires, soit dans le nombre, la forme ou l'éruption des dents.

B. Au point de vue radiologique

1. le crâne est brachycéphalique;

2. la calcification des fontanelles et des sutures est retardée; des os wormiens se rencontrent fréquemment à l'endroit des sutures;

3. les clavicules sont soit aplaties, soit absentes;

4. les sinus frontaux, maxillaires et paranasaux peuvent être absents ou peu développés;

5. les mastoïdes sont incomplètement pneumatisés;

6. les anomalies dentaires les plus évidentes consistent en inclusions multiples, retard de l'élimination des temporaires, présence de dents surnuméraires incluses ayant des racines courtes et malformées;

7. les dents incluses, surtout les prémolaires, sont ordinairement en position d'éruption normale.



FIGURE 4 Voûte palatine très profonde.

DIAGNOSTIC DIFFÉRENTIEL

L'apparence de ces patients est certes caractéristique, mais avant de poser un diagnostic final, il faut songer à quelques autres dysostoses crânio-faciales qui comportent aussi d'une façon générale des malformations du crâne, du visage et des dents. Mentionnons la maladie de Crouzon, le syndrome de Pierre-Robin, le syndrome de Treacher-Collin, le syndrome de Rubinstein-Taybi.

RAPPORT D'UN CAS

G. R. est un adulte de petite taille, âgé de 21 ans. Il est l'aîné d'une famille de neuf enfants issus de parents normaux.

FIGURE 5 Les crêtes alvéolaires sont larges et laissent prévoir de nombreuses inclusions dentaires.

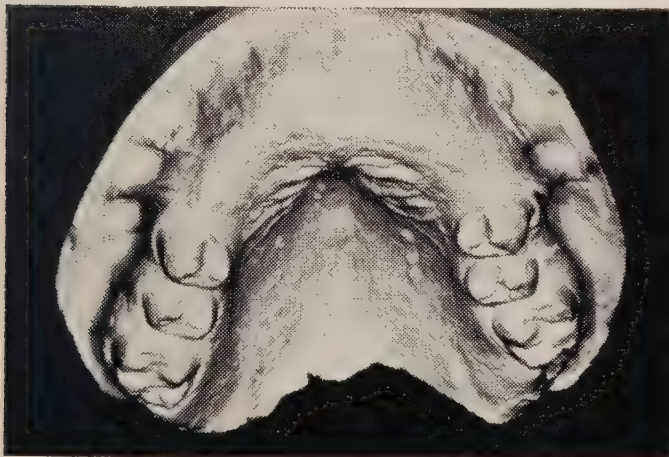




FIGURE 6 Film panoramique Panorex. On y voit des dents incluses et surnuméraires.

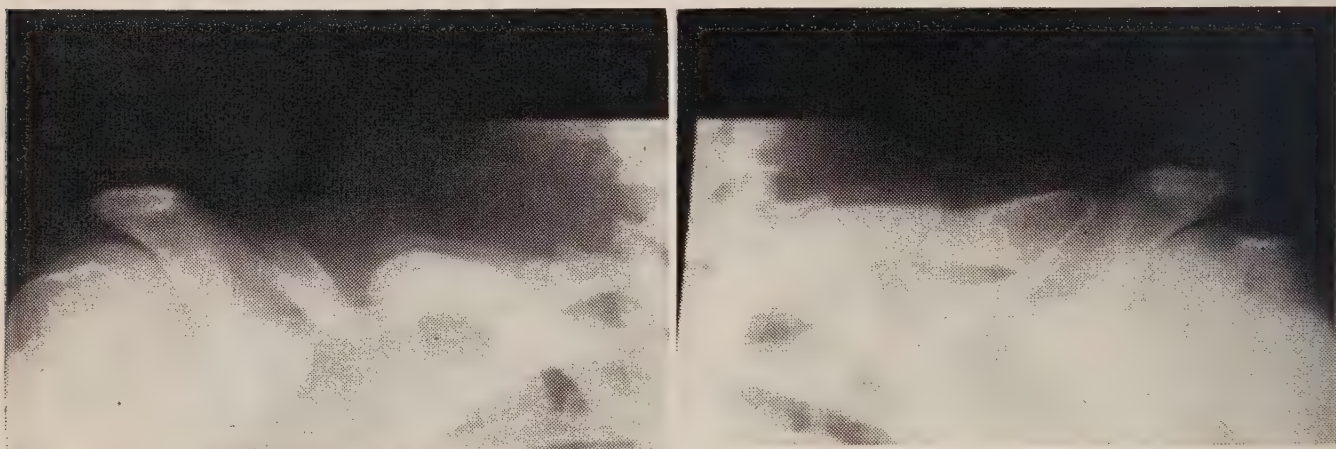


FIGURE 7 La radiographie des épaules montre bien l'aplasie des clavicules.

Une consultation médicale en bas âge donne le diagnostic probable de rachitisme. En 1959, un dentiste procède à l'extraction des dents temporaires du segment antéro-supérieur et des segments latéraux inférieurs. Fait inusité: en 1960, lors d'une correction chirurgicale du septum nasal, le chirurgien découvre deux dents ectopiques. En avril 1965, le patient se présente à notre clinique se plaignant de difficulté à mastiquer et de troubles digestifs.

Pour son âge, le patient est de taille inférieure à la normale. Il est brachycéphalique; la tête est large et aplatie. Les os frontaux sont proéminents et séparés par une large dépression située sur le site de la suture métopique (Figure 1). Le nez est large et proéminent. Le maxillaire supérieur apparaît sous-développé et la

mandibule est proéminente simulant un profil de prognathe. Certains doigts sont de forme conique (Figure 2). Les épaules sont hypermobiles (Figure 3).

L'examen buccal révèle une voûte palatine très profonde et étroite (Figure 4). Le frein lingual est gros et attaché sur la gencive; il limite les mouvements de la langue. Les crêtes alvéolaires sont larges (Figure 5). Les dents sont en malocclusion.

L'examen radiologique décèle plusieurs dents permanentes et surnuméraires incluses (Figure 6). Les clavicules sont partiellement aplasiées (Figure 7). La suture sagittale est encore ouverte; les os propres du nez sont incomplètement développés. On note la présence d'os wormiens dans des sutures crâniennes.

DISCUSSION

La dysostose cléido-crânienne porte aussi le nom de maladie de Marie et Sainton, ou de dysostose mutationnelle; elle fait partie d'un groupe assez complexe de maladies que nous pourrions classer d'une façon générale sous le titre de dysostoses crânio-faciales. Comme les anomalies dentaires sont présentes d'une façon caractéristique, nous croyons que l'appellation: "dysostose cléido-crânio-dentaire" serait plus correcte.

RÉSUMÉ

1. La dysostose cléido-crânienne est une maladie rare, apparemment héréditaire et d'étiologie incertaine.

2. Son aspect pathognomonique en rend le diagnostic facile.

3. L'appellation nouvelle de dysostose cléido-crânio-dentaire semble plus descriptive.

4. L'article rapporte un cas.

*Chargé d'enseignement.

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C.P. 6128

NOTRE COUVERTURE: Il y a cent ans était fondée la société dentaire la plus ancienne du Canada, à Cobourg, Ontario. Sous la direction de W. B. Day, de Kingston, l'Association dentaire de l'Ontario prépara la constitution légale de la profession en Ontario et la promulgation de la première loi du Canada sur l'exercice de la dentisterie. La loi, adoptée à la première séance de la première législature de l'Ontario et qui reçut la sanction royale le 4 mars 1868, fondait le Collège royal des chirurgiens dentistes de l'Ontario. Notre couverture reproduit la première page du registre du Collège, conservé au 230 rue St. George à Toronto. En surimpression, l'emblème et le thème du congrès du centenaire de l'ADC et de l'ODA de 1967.

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PREVENTION AND CONTROL OF HAEMORRHAGE IN DENTISTRY

In the following 21 annotations the Journal presents significant information about the problem of haemostasis in dental practice. Each annotation is condensed from a report presented by the respective author at a postgraduate symposium on the management of surgical bleeding sponsored by the Division of Continuing Education, Faculty of Dentistry, University of Alberta, Edmonton, September 6-7, 1966. The Journal is grateful to the conference participants for providing these annotations. The Journal also welcomes constructive comment from readers with a view to improving the usefulness of such presentations to the profession.

Methods of Screening Haemorrhagic Defects

Clinical Evaluation of Patients with Haemorrhagic Problems

A. S. Little, Cancer Clinic, Edmonton, Alberta

The diagnosis of haemorrhagic diseases is based upon information which may be derived from the history, from observation of the type and site of bleeding and from the findings of certain laboratory tests.

It could very well be said that the history and physical examination are the two most important factors in deciding whether or not a haemorrhagic state

exists. They may also be helpful in separating the various disorders from one another, although this is much more likely to depend on complete laboratory investigation and assays for specific coagulation factors.

Since the history is such a valuable tool in the initial determination of the presence or absence of haemorrhagic disease, it serves an admirable purpose in the private practice of dentistry. More than any other factor, it should determine whether one proceeds with dental trauma without further investigation and even pre-operative preparation with blood or blood products, steroids and so forth.

So many of the coagulation defects are inherited that family history with respect to bleeding should be a part of every patient's chart. If the history divulges other relatives with severe bleeding problems,

particularly if the relative is male, then one should strongly suspect a bleeding defect. If the patient has had trouble with bleeding from birth or early life, and particularly if he is male, one should again suspect an inherited defect. Bleeding from multiple sites, into solid organs or joints is also an important warning sign. Likewise, previous major haemorrhage after minor trauma is of great significance.

The type and site of bleeding may also be of great help. The important diagnostic features of subcutaneous and submucous bleeding as compared to deep tissue and joint haemorrhage, and the significance of a latent period between trauma and bleeding are all matters that require interpretation before the patient can be given the maximum benefit with the minimum risk.

Without a keen appreciation of the value of the history and the physical examination the dentist will find himself in risky and embarrassing situations.

Use and Limitations of Laboratory Tests in Bleeding Disorders

J. R. Hill, University Hospital, Edmonton, Alberta

The ideal method for diagnosing bleeding disorders in dental practice would be a single laboratory screening test which would tell whether or not a bleeding disorder is present. No such test is currently available.

The majority of clinically significant bleeding disorders will produce an abnormality in either the partial thromboplastin time, prothrombin time or in the platelet count. The whole blood clotting time is not useful for screening as the sensitivity of this test is low and major bleeding problems can be missed.

Although minor deficiencies in clotting factors may be missed using the above procedures, most of the clinically significant problems will give abnormal results. Rare conditions, such as thrombasthenia, will not be picked up by this method. Fibrinolysins or circulating anticoagulants will give abnormal results in either the

partial thromboplastin time or prothrombin time or both.

When an abnormal result is found, further procedures are available to pinpoint the defect. The thromboplastin generation test will isolate deficiencies of factor VIII, IX or XI and specific assays are available to determine the exact level. Substitution tests using the prothrombin time can indicate whether the defect is factor V, VII or X. Quantitative fibrinogen and other methods are available for assessing fibrinolysins.

Evaluation of Patients Undergoing Anticoagulant Therapy

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Many ambulatory patients are now on anticoagulant therapy. This has been used for many conditions involving intravascular clotting, including myocardial infarction, severe angina, atrial fibrillation with embolization, thrombophlebitis, cerebral arterial insufficiency, following insertion of artificial heart valves or arterial grafts, and retinal arterial or venous thrombosis. The drugs commonly used at present include the coumarin and the indandione groups. Some of these patients require dental treatment. They may bleed excessively after dental extraction or any other surgical condition, unless it is recognized that they are on anticoagulants and necessary precautions are taken.

Before starting long term anticoagulation for a patient, the following requirements are necessary: (1) an intelligent patient who will follow instructions; (2) adequate laboratory facilities; (3) adequate instruction of the patient; (4) a wallet card with the necessary details. Contra-indications may be classed as absolute or relative. The absolute contra-indications are (1) an unco-operative patient; (2) inadequate laboratory facilities; (3) a haemorrhagic diathesis; (4) a large ulcer or open wound; (5) a recent operation on the central nervous system. The relative contra-indications are (1) hypertension; (2) a recent operation.

The evaluation of the patient prior to

dental surgery as far as bleeding is concerned includes (1) the recognition that the patient is receiving anticoagulants and (2) the determination of the level of the prothrombin time or thrombotest.

Heparin therapy is seldom used in this country on a long term basis as the effects are transient.

Haemostatic Agents

Local Haemostatic Agents

*O. N. Lucas, Faculty of Dentistry,
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berta*

Local haemostatic agents are very important adjuncts in the prevention and treatment of haemorrhage in the oral cavity. Since ancient times, pressure, cold, cautery and chemical caustic were used empirically to effect haemostasis. Ligation, an ancient procedure used in the Alexandrian era, was rediscovered in the sixteenth century and is today a standard technique in the control of surgical bleeding. Isolation of highly purified thrombin from coagulated blood in 1940 represented a very important forward step in local haemostasis. Thrombin is a powerful enzyme capable of producing an instant clot when exposed to fibrinogen *in vivo* and *in vitro*. Thrombin can be used for haemostatic purposes in powder form or in solution. Tissue thromboplastin in powder form or in solution can also be used as a local haemostatic agent. However, its clot promoting capability is much less effective than that of thrombin because its action takes place in the first phase of coagulation and requires the prothrombin level in blood to be normal. Snake venom is also utilized for local haemostasis. Its haemostatic property is due to a thromboplastic activity which depends upon platelets, phospholipid, prothrombin and factors V and X. Snake venom therefore has the same limitations as thromboplastin. Of the absorbable materials used for the control of bleeding, only Gelfoam possesses haemostatic

action. Gelfoam is processed from animal skin gelatin and its haemostatic properties depend upon disintegration of platelets. Surgicel and Oxycel do not possess any haemostatic activity. Their haemostatic action may be caused by the formation of a mechanical fibrin-like mesh for the formation of a clot. Surgicel and Oxycel are excellent vehicles for thrombin but the natural acidity of these materials inactivates thrombin. This problem is circumvented by dissolving thrombin in a solution of 0.5 per cent sodium bicarbonate instead of saline.

Recent work with methyl-2-cyanoacrylate as a local haemostatic agent appears to be very promising in the control of bleeding.

Systemic Haemostatic Agents

E. W. P. Luxford, Calgary, Alberta

Systemically administered haemostatic agents have one of the three following aims: (a) increasing the clotting ability of blood; (b) increasing the strength of the clot itself; (c) improving the strength and tone of blood vessels.

Clotting Ability.—Laboratory tests can ascertain the nature of a clotting deficiency and the basic lack can be corrected by administering whole blood or blood products. Typical examples are the states in which a lack of factor VIII (haemophilia A), factor IX (haemophilia B) or factor XI (haemophilia C) has been inherited.

Thrombocytopenias can be idiopathic or may be secondary to bone marrow depression due to chemical toxicosis or debilitating disease. Fresh blood or platelet transfusions are indicated for haemostatic purposes. Fibrinogen deficiency is extremely rare and can be treated by infusions of fibrinogen itself. Prothrombin deficiency is found where bishydroxycoumarin (Dicumarol) is used for anticoagulant therapy, when vitamin K is either lacking in the diet or cannot be absorbed or when extensive liver disease is present. Here we can lower the Dicumarol level and/or administer a water soluble

form of vitamin K to counteract the deficiency. The efficacy of vitamin K in the 'normal' person is doubtful.

Strength of Clot.—Some trials indicate that Σ -aminocaproic acid (EACA) administered systemically and locally inhibits the action of fibrinolysin and enhances the strength of whatever clot is formed.

Strength and Tone of Blood Vessels.—Certain nutrients, such as vitamins C and P and the citrus bioflavonoids, are essential for optimum integrity of the vascular walls. Deficiencies in these factors may be subclinical except for a tendency to bruise easily.

Conjugated oestrogens are favoured by some surgeons but the results of clinical trials are equivocal. Adrenochrome monosemicarbazochrome-salicylate complex seems to work experimentally but has no appreciable effect clinically. Agents of little clinical value are Kutapressin, calcium, Toluidine Blue, Koagamin, Ceanothyn and Sistosan.

Electrical Haemostasis

A. D. Sparrow, Calgary, Alberta

Electrocoagulation has been used in medical practice since the middle of the nineteenth century and latterly also in dentistry. This procedure is effective in controlling operative and postoperative bleeding.

Direct and alternating current have both been adapted to the control of bleeding. Both are in present day use, alternating current being more commonly employed on the North American continent. Grant Ward (1925) showed that alternating current was more effective in converting fibrinogen to fibrin. Actually, conversion by either current is effective even in circumstances where abnormal clotting mechanisms exist. It is believed that the efficiency of this method stems from the fact that the intermediate stages in the blood clotting mechanism are bypassed.

Electrocoagulation has a wide range of application in dentistry and should be of interest in periodontics, endodontics, res-

torative dentistry as well as oral surgery.

Blood vessel closure by electrocoagulation is achieved by obliteration of the blood vessel lumen at the point of bleeding or by welding of the approximated sides of the vessel at a distance from the cut end. The degree of haemostatic effect depends directly upon the degree of dehydration of the tissues involved. The power required to accomplish electrocoagulation is influenced by three factors: (a) duration of application of the current, (b) type of electrode used, and (c) character of the surrounding tissue. The hazards involved in the use of diathermy usually derive from one of two things: (a) failure of the machine or (b) failure of those responsible for the machine. The ultimate success in the use of the machines designed to assist in the control of haemorrhage electrically depends upon the practitioner's ability to overcome fear of the unknown.

Haemostatic Properties of Blood Transfusion

Joseph McKenna, Jefferson Hospital, Philadelphia, Pennsylvania, USA

Transfusion therapy to control bleeding is now common practice in clinical medicine. Abnormal bleeding may occur in Von Willebrand's disease, thrombocytopenia or in deficiency of fibrinogen, prothrombin or factors V, VII, VIII, IX, or XI.

The components of blood which are ordinarily available for therapy are banked blood, fresh blood, packed red blood cells, 'blood bank' plasma, fresh frozen plasma, fresh plasma, antihæmophilic globulin (AHG) concentrates, platelet rich plasma, platelet concentrates and fibrinogen.

Indications for transfusions in bleeding diseases are the need (1) to correct anaemia and (2) to normalize the coagulation dysfunction.

Fresh whole blood from a normal donor should theoretically be the most effective form of therapy because it corrects anaemia and contains the essential components for coagulation. Practically, however, fresh whole blood is rarely in-

licated alone because more concentrated preparations containing the specific coagulation factors are needed.

To treat idiopathic or secondary thrombocytopenia, fresh platelet rich plasma or platelet concentrates should be used. Generally, to prevent haemorrhage in thrombocytopenia, platelet levels above 20,000 are sufficient. A unit of platelet concentrate contains 1×10^{11} platelets. Usually four units of platelet concentrate daily will maintain the haemostatic level.

Fresh plasma or fresh frozen plasma will correct deficiencies of factor V or factor VIII. 'Blood bank' plasma will correct deficiencies of all other clotting factors.

Initially, enough plasma should be given so that the deficient clotting factor is raised to a concentration above 20 per cent. Usually, an initial infusion of 1,000 ml. of plasma to an average adult will produce this minimum haemostatic level. The amount and frequency of subsequent transfusions will depend mainly upon the status of the patient and upon the half disappearance rate of the particular clotting factor that requires replacement.

Recently, an easy method for making AHG-rich cryoprecipitates from fresh plasma has been described by Judith Pool. AHG-rich cryoprecipitates contain in 10 ml. the amount of factor VIII present in 140 ml. of plasma. This preparation is administered in a priming dose of two units of precipitate per 12 Kg. of body weight followed by a maintenance dose of one unit of precipitate per 12 Kg. of body weight given every 12 hours. This dose will usually raise and maintain the factor VIII concentration above 20 per cent.

Haemostasis

Blood Vessels in Haemostasis

A. S. Little, Cancer Clinic, Edmonton, Alberta

In the consideration of problems of abnormal bleeding after surgical trauma, great attention has been devoted to dis-

turbances of coagulation factors and to quantitative and qualitative defects of platelets. Much valuable diagnostic and therapeutic improvement has resulted from this increased attention.

The role of the blood vessels in haemostasis, however, has been poorly understood. Although many references have been made to increased 'vascular fragility' and vascular contractility, the elements required to preserve these functions are poorly understood. Without doubt neural and hormonal influences play some part in the immediate response to vascular injury. In addition, vitamin C, oestrogenic substances, perivascular mesenchymal supporting tissues and the substances adsorbed on or released by platelets seem to have some influence on the blood vessels and their ability to aid in stopping bleeding. Certain substances of allergic, toxic or infectious origin also appear to be of some importance in haemostasis and the role of the blood vessels in the arrest of haemorrhage.

The hereditary diseases of blood vessels and mesenchyme also promote the appearance of abnormal haemorrhagic states and must be considered in any situation where bleeding is unusual and unexplained by platelet or coagulation defect. Some very unusual cases are seen with both capillary defects and coagulation defects.

Haemostatic Mechanism: Historical Review

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Harvey's explanation of the circulation of blood triggered scientific investigation of the physiology of haemostasis. Petit (1731) is considered the first person to offer a physiological approach to the dynamics of haemostasis. He emphasized the importance of blood coagulation. Morand (1736) introduced the concept of vascular contraction in the control of bleeding. The role played by vascular contraction in haemostasis was supported by Kirkland (1736), Gooch (1766) and White (1770). However, during the sec-

ond half of the nineteenth century considerable interest was directed to developments in the field of coagulation and little or no attention was given to the contraction theory. Hayem (1878) introduced the role of the platelets as the third factor participating in spontaneous haemostasis. Bizzozero (1882) corroborated this and described the ability of platelets to agglutinate and adhere to the cut ends of a severed vessel. Morawitz (1904) formulated his classic two step enzymatic theory on blood coagulation and 20 years later pointed out that coagulation is not the only factor responsible for spontaneous haemostasis. This coincides with the views of Magnus (1923) who revived the theory of vascular contraction in haemostasis and stressed that blood coagulation is not the only factor responsible for the control of haemorrhage. Tannenbergh and Herman (1927) suggested that pure mechanical factors might influence spontaneous haemostasis. They considered that pressure produced by a haematoma formed at the site of injury is enough to stop bleeding from small vessels. Stegeman (1922) introduced the concept of endothelial cell stickiness and adhesion following injury of the blood vessel. More recently, Macfarlane (1940), Tocantins (1947) and Quick (1951) have given a thorough interpretation of blood coagulation and the action of blood vessels and platelets. They have explained the complex mechanism and dynamic balance of these three factors in achieving spontaneous haemostasis.

Current Concept on Blood Coagulation

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The clotting mechanism has been the focus of controversy since Morawitz's simple two step scheme was proposed in 1904. Currently, two different schools of thought prevail. They are (a) the sequential cascade or water-fall system and (b) the multipotential activity of prothrombin hypothesis. The former suggests that each of the eight components, which are distinct protein moieties, are activated

from an inactive to an active form. Thus, factor XII is activated to XIIa, XI to XIa, IX to IXa, VIII to VIIIa, X to Xa, V to Va, II to IIa, I to Ia (fibrin), the final reaction being the transformation of fibrinogen to fibrin. The latter scheme suggests that prothrombin (II) gives rise to factors IIa, VIIa, X, Xa while the remaining factors I, V, VIII remain as distinct units to react with, or are acted upon by the subunits of prothrombin.

The similarities and differences in the two mechanisms are not at once obvious. The similarities are that both have fibrin as an end product, which is transformed from fibrinogen by the enzyme thrombin. Both systems are activated initially by factor XII. The major differences relate to the origin of and the sequence of activation of the other factors. The cascade proponents suggest the sequential activation acts as an amplification system. The prothrombin unit group suggests that the amplification is accomplished through the concentration of thrombin and its ability to act autocatalytically. Both hypotheses are supported by experimental data to prove their respective systems. Both may in part be true.

Physiologically, the action of these various factors aids in producing normal haemostasis. A patient who has a deficiency of one or a combination of these factors has a bleeding disorder which may be quantitatively diagnosed.

The *in vivo* half-life of some of these factors is as follows: I=four days; V=36 hours; VIII=14-16 hours; IX=18-24 hours; X=26-34 hours; XI=40-84 hours. Replacement therapy during a haemorrhagic episode is based on the knowledge of the half-life values of each respective factor in the disease state. Transfusions are safely given to replace the respective factor from human plasma, plasma fractions and whole blood.

Platelets in Haemostasis

A. J. Erslev, Cardeza Foundation, Jefferson Hospital, Philadelphia, USA

Blood is a fluid designed to circulate freely through the vascular system. How-

ever, to prevent its accidental escape through vascular breaks, endothelial injury mobilizes an elaborate haemostatic system consisting of vascular constriction and contraction, platelet plugging of vascular defects and activation of clotting proteins resulting in the formation of a permanent seal of the vascular break. In order to prevent undue activation of this haemostatic system and keep thrombus formation to a minimum, anticoagulants will inactivate clotting proteins, dissolve thrombi and produce vascular recanalization.

This exquisitely functional system has unfortunately received an undeserved aura of complexity and confusion. There has been a mushrooming of factors, cofactors and antifactors, and a lack of realization that physiological haemostasis in rapidly circulating blood is different from artificial clotting in a test tube. Recent studies on the action and the kinetics of platelets have fortunately rectified this situation.

The initiating event in haemostasis appears to be the release of adenosine-diphosphate (ADP) from injured endothelial cells. This ADP produces adhesion and cohesion between platelets causing the formation of a patch of sticky platelets on the damaged endothelium. Electromicroscopic examination has shown that intracellular phospholipids move toward and through the platelet membrane, presumably initiating the cascade activation of clotting proteins. The flow of blood around this patch of fused platelet and fibrin strands produces a layered arrangement of cells and fibrin resulting in the characteristic tough functional thrombus.

The utilization of platelets in this process has led to careful studies of the rate of production and destruction of platelets, of platelet lifespan and platelet preservation. The immediate practical results of these studies have been the development and utilization of platelet concentrates for the treatment of thrombocytopenic haemorrhage.

This recent interest in the action and fate of platelets has added a new dimension to our understanding of haemostasis and holds promise for the future effective

control of undue thrombotic or haemorrhagic tendencies.

Control of Bleeding in Dental Procedures

Preparation of Surgical Patients

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berta*

The medical and family history along with a thorough oral examination are the main preliminary steps in patient evaluation for surgery. Prolonged bleeding following exodontia can be systemic or local in nature or due to inadequate surgical haemostasis. Tests, such as bleeding and clotting time, are not as reliable in detecting haemorrhagic disorders as are a thorough medical and family history. However, when a bleeding disorder is suspected, specific tests should be ordered. Thromboplastin generation or prothrombin consumption, prothrombin time and fibrinogen concentration tests will aid in indicating defects in all three phases of coagulation. A platelet count will indicate haemorrhagic problems due to thrombocytopenia and the tourniquet test will likely indicate vascular abnormalities.

In patients presenting a coagulation defect, hospitalization and pre-operative transfusions are usually indicated. Planning in these cases is the joint responsibility of the internist and the dentist. In idiopathic and secondary thrombocytopenia transfusions of fresh whole blood or platelets are required to elevate the platelet count to a haemostatic level.

Preparation of patients undergoing anti-coagulant therapy consists in assuring the best oral condition prior to surgery and planning for only the acute surgical needs. Anticoagulants can be safely continued during extractions. In severe anaemics blood volume should be corrected pre-operatively, particularly if general anaesthetics are used, because the oxygen carrying capacity is reduced. Vitamin K

deficiency, jaundice and liver disease may cause severe bleeding due to hypoprothrombinaemia. Vitamin K therapy and treatment of the liver disease are then indicated prior to surgery. Leucaemic patients require blood replacement therapy prior to any surgery.

Bleeding can occur in the oral cavity due to acute infection, such as gingivitis, periodontitis, pericoronitis and so forth. These should be treated pre-operatively by prophylaxis and in conjunction with antibiotic therapy.

Management of Bleeding in Children

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berta*

There are very few differences between adults and children with regard to the technical aspects of the management of bleeding problems. Good surgical technique is obligatory regardless of the patient's age. The child with a coagulation defect poses some special problems related to exfoliation of deciduous teeth. The tissue supporting these teeth may bleed for weeks during exfoliation. When the roots have been resorbed, the tooth should be removed and the bleeding stopped.

A thorough medical, dental and family history is imperative when a blood disorder is suspected. A careful clinical examination of a suspected haemophilic child should include a search for scars, bruises, scabs and limitation of joint movements. A thorough and complete educational and preventive dental program should be undertaken with all haemophiliacs and their parents.

Conservative treatment, rather than surgery, should always be considered. Pulpotomy or pulpectomy may save the patient from the hazards of surgery. The rubber band technique for exfoliating teeth is painful over a long period of time and produces a hyperaemic reaction. From a technical point of view, it is impractical. If tooth extraction is necessary, an atraumatic surgical technique is used and sockets are properly packed.

A clear acrylic splint is used to protect the clot.

Sutures are contra-indicated. Close consultation with a haematologist is imperative. Local anaesthetic must be carefully infiltrated. The risk of haematoma precludes the use of deep block injections. Some authorities prefer general anaesthesia and endotracheal intubation for haemophiliacs requiring dental surgery.

Children require special psychological preparation for surgery. Reassurance, pre-operative and postoperative sedation and hypnosis are useful in the control of the child and in the control of haemorrhage.

Whenever surgery is planned for a known haemophiliac, an adequate supply of blood or blood products should be available for correction of the coagulation defect and replacement therapy.

Infection and Bleeding

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berta*

Infection can exert local or systemic, direct or indirect influence on bleeding.

Haemorrhages caused by infections secondary to surgery are probably the result of direct local action of proteolytic bacterial enzymes on granulation tissue. A special case is that in which *Str. pyogenes* is the infecting agent. Such streptococci produce streptokinase which converts host profibrinolysin to fibrinolysin.

Local and systemic haemorrhage can accompany infectious disease. In certain cases, such as tuberculosis, it is probable that hypersensitivity as well as ill-defined 'toxic factors' are involved. In other circumstances, such as liver infections, the synthesis of fibrinogen, anti-fibrinolysin, prothrombin and plasma factor V is depressed, leading to clotting defects. Diseases such as the 'Black Death' and the 'Black Small-Pox' are rare. However, cases of fatal haemorrhagic chicken-pox, associated with cortisone therapy, are reported currently.

Hypersensitive reactions can cause local and systemic haemorrhages. In general,

anaphylactic reactions cause an increase in serum heparin which tends to block thrombin formation. In man, massive gastric haemorrhage has been reported to follow anaphylactic shock caused by penicillin.

In animal experiments it has been demonstrated that bacterial endotoxins can cause both local and systemic haemorrhages. Blood loss, especially when accompanied by intravascular haemolysis, can lead to irreversible endotoxin shock accompanied by massive haemorrhages in the lungs and stomach wall. In human beings, a similar role of bacterial endotoxins in radiation sickness has been reported in the Russian literature.

On the positive side, in the relationship of micro-organisms to blood clotting, it is well to remember that most of the vitamin K required by man is synthesized by the organisms living in his intestine. When these organisms are not present, as in the newborn, or when they have been killed by antibiotics, a vitamin K deficiency can occur. In these cases the resultant blood-clotting defect can be treated by dietary vitamin supplements.

Control of Bleeding During Surgical Procedures

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It is of the utmost importance for a dentist to be able to control surgical haemorrhage. The several methods at his disposal for this purpose fall into two classes: mechanical and chemical.

Mechanical.—(1) For capillary bleeding apply local pressure on a gauze sponge with a finger, or have the patient bite on a gauze sponge and maintain steady pressure for 20-30 minutes. (2) For venous or arterial bleeding clamp the vessel with a haemostat and, if necessary, ligate with a plain or chromic catgut ligature, usually 000 size. (3) Suture the mucosa with cotton, silk or nylon sutures, or place additional 00 or 000 sutures. (4) To arrest bleeding from bone, place various sponge or gauze packs in the

socket. Alternatively, occlude the bleeding vessel within the bone by compressing it with a blunt instrument, such as a curette or burnisher, or by packing it with sterile beeswax (bone wax).

Chemical.—(1) Apply gauze saturated with adrenalin 1:1,000 topically to arrest the haemorrhage long enough to allow the severed end of the blood vessel to occlude itself. (2) Place absorbable oxidized cellulose in the socket. (3) Place absorbable gelatin sponge in the socket. (4) Pack thrombin, thromboplastin or a piece of oxidized cellulose or gelatin sponge saturated with thrombin into the socket. Place a suture over the socket to aid in retention of the packing of choice within the socket.

Bleeding During Periodontic Surgery

*M. W. Packer, Faculty of Dentistry,
University of Alberta, Edmonton, Al-
berta*

Excessive haemorrhage may be seen in patients (1) who demonstrate negative clinical and laboratory haematological tests, and (2) where evidence of abnormal systemic factors, such as haemophilia, thrombocytopenia or purpura, is present. Mechanical control of haemorrhage is similar in both cases.

The clinician is concerned with management of bleeding problems at one of three periods of time. The first is spontaneous haemorrhage occurring previous to any type of treatment. Spontaneous bleeding may be successfully controlled with the zinc-oxide eugenol periodontic pack. Interdental bleeding may be controlled by a single bucco-lingual suture.

The second instance is when a bleeding problem occurs during conservative periodontic treatment. The previously mentioned control measures for spontaneous bleeding also apply here. This bleeding may persist after treatment due to lack of closure of the vessels in the granulation tissue owing to increased fragility of capillaries.

The third situation is where bleeding problems are encountered during and after periodontic surgery. Needless to

say, good surgical technique is imperative. Where tissue and periosteum have been reflected, as in flap procedures, these should be re-adapted closely and sutured. Defects created by bone surgery may indicate use of such agents as oxidized cellulose to assist in control of bleeding. Periodontic procedures, such as gingivectomy, that result in the removal of tissue may pose additional problems because of the large surface wound area. Pressure from a blunt instrument is usually effective in control of the haemorrhage. Residual granulation tissue or tissue tags, if permitted to remain, provide another source of haemorrhage. Methods to control haemorrhage in periodontics, such as electrocoagulation and caustics, have been suggested. In recent studies, pharmacologically orientated haemostatics, such as methyl-2-cyanacrylate, have been successfully utilized.

Local Oral Abnormalities Associated with Haemorrhage

*K. A. McMurchy, Faculty of Dentistry,
University of Alberta, Edmonton, Alberta*

Local oral haemorrhage most commonly results from mechanical injury due to surgical procedures, injections or blows. The degree of damage to the blood vessels, the presence or absence of chemicals and infection, and the anatomical features of the affected region influence the resulting pathological effect. In most cases injury results in ecchymosis or a haematoma. These lesions normally resolve by enzymatic liquefaction of the clot, phagocytosis by defence cells, organization from the periphery, and, finally, the laying down of fibrous repair tissue and normal bone. Occasionally, normal repair does not take place and local oral haemorrhage gives rise to aneurysmal bone cysts, traumatic bone cysts, or giant cell reparative granulomas.

Aneurysmal bone cysts occur within bone and are surgically recognizable by the sponge-like character of the tissue. Histologically, they contain cavernous blood-filled spaces. They probably rep-

resent a reaction to osseous injury wherein haemorrhage has occurred but blood flow has continued and has become organized through a sinusoidal net.

Traumatic bone cysts are intra-osseous lesions which, on surgery, are found to contain red or brown coloured fluid or an empty space. Histologically, the peripheral areas contain blood debris and giant cells are often present. They represent residual haematomas in which liquefaction has occurred but complete healing and repair have not taken place.

Giant cell reparative granulomas may appear as blueish enlargements of the alveolar mucosa or as radiolucent areas within bone. The tissue is deep red in colour and somewhat friable. Histologically, it is made up of a stroma of fibroblast-like cells, many giant cells, macrophages with haemosiderin, extravasated blood cells and numerous capillaries. The aetiology is unknown but it is generally regarded as being a peculiar reaction associated with haemorrhage. Some lesions have a tendency to recur, which suggests that true neoplastic changes may have taken place in some of the cells.

Dental Treatment of Haemorrhagic Patients

Dental Bleeding in Haemophiliacs

O. N. Lucas, Faculty of Dentistry, University of Alberta, Edmonton, Alberta

Haemophilia is an hereditary disease characterized by its severe bleeding tendency due to hypocoagulability of the blood. A deficiency in the first phase of the coagulation mechanism or intrinsic thromboplastin formation is the causative factor in haemophilia. Bleeding of dental origin is very common and can be troublesome. This situation may arise when careful medical-dental pre-operative preparation of the patient has been ignored, or when the reliance to effect haemostasis has been placed solely on transfusion of blood plasma or antihaemo-

philia globulin. A very careful atraumatic surgical technique, meticulous packing of the sockets, protection of the extraction area and avoidance or alleviation of excessive psychological stress can lead to successful non-haemorrhagic extraction in haemophiliacs. Haemostasis can be effected by following the above-mentioned principles, thereby rendering the postextraction need of blood products unnecessary even in the most severe haemophiliacs. We have treated 20 haemophiliacs of type A and four haemophiliacs of type B in which 113 teeth were successfully extracted without severe haemorrhagic complication or need for transfusion therapy. Close cooperation between the oral surgeon and haematologist in the preparation and management of haemophiliacs during surgery and postoperatively is imperative. The haematologist is responsible for the study and evaluation of the severity of the haemophilic defect. The oral surgeon is responsible for the evaluation of the oral and dental condition of the patient and for assuring the best possible conditions for the surgical operation. It is also imperative to know and understand the fundamental principles involved in the mechanism of haemostasis. Furthermore, the mechanism by which the local haemostatic agents used to pack the socket function to effect haemostasis must be understood.

Haemostasis in Anticoagulant Treated Patients

R. S. Van Alstine, Faculty of Dentistry, University of Alberta, Edmonton, Alberta

Anticoagulants used in clinical medicine are either direct like heparin or indirect like the coumarin or indandione groups. Direct anticoagulants produce hypocoagulability due to their antithromboplastic and antithrombin activity. Indirect anticoagulants, on the other hand, act by depressing the synthesis in the liver of the factors participating the 'prothrombin complex' (prothrombin, factors VII and X).

In the anticoagulant treated patient bleeding following oral surgery is not a serious problem provided the therapy is rigidly controlled by the physician. However, serious haemorrhage may occur due to faulty laboratory tests in evaluating anticoagulant activity or overdose of the drug, for example.

Multiple as well as single extraction can be performed in anticoagulant treated patients without complicated surgical or postsurgical bleeding as long as the patient is under close observation by the physician. However, it is also imperative that a sound surgical technique be utilized by the dentist. Absorbable haemostatic agents, used in the extraction site, play a very important role in the prevention and treatment of postextraction bleeding.

In addition, protection of the extraction site by gentle gauze pressure, the use of sutures when required (as in multiple extraction), and, in general, the gentle handling of tissues are of paramount importance in effecting haemostasis. Systemic antibiotics should be used because the bleeding is controlled in a closed field (socket filled with absorbable haemostatic material) and because the potential for infection is present.

Current clinical experience indicates that the anticoagulant need not be discontinued to achieve haemostasis following extraction because the danger of thrombosis is much greater than the danger of bleeding.

Management of Patients with Thrombocytopenia During Dental Surgery

W. P. Webster, Faculty of Dentistry, University of North Carolina, Chapel Hill, North Carolina, USA

Haemostasis which is normally afforded by circulating platelets is the product of several specific functions of the platelets. These are (1) platelet thromboplastic activity (platelet factor III), and (2) formation of the platelet plug and the ability of the platelets to function as the endothelial support or seal. The thrombocy-

topenic state may be secondary to idiopathic thrombocytopenia purpura, aplastic anaemia, drug purpura, chemotherapy, ionizing radiation or one of the other short termed states. Faced with this problem, the decision must be made whether or not to proceed with dental surgery. Usually, palliative treatment is indicated. This may include incision and drainage, endodontic therapy, antibiotic therapy and the selective use of analgesics or narcotic drugs. Thus, surgery is postponed until the return of normal platelet function. Chronic thrombocytopenia secondary to long term chemotherapy for leukaemia, irreversible aplastic anaemia and chronic idiopathic thrombocytopenia present other types of problems. Oral surgery must be considered in the event that the conservative measures fail. In severe thrombocytopenia platelet transfusions must be utilized.

Platelet transfusions are available as a therapeutic tool. In order to attain functional surgical haemostasis, platelet counts must be above 50,000 per cu. mm. Clinical haemostasis in the quiescent thrombocytopenic state may be obtained in patients when the count is as low as 20,000 per cu. mm. or lower. The transfused platelet life-span varies according to the primary disease. The average life-span is 10 days. In megakaryoblastic thrombocytopenia the platelets have a normal survival time. It may be shortened in acute self-limited thrombocytopenia with the development of iso-immunization following multiple transfusions, which results in rapid destruction of all transfused platelets. Platelet transfusions should be given every four days and levels should be maintained above 50,000 cu. mm. immediately after oral surgery and maintained for eight to 10 days.

Dental Extractions in Anaemic Patients

*G. H. Sperber, Faculty of Dentistry,
University of Alberta, Edmonton, Al-
berta*

The dentist is in a particularly advantageous position to detect anaemias in patients. His familiarity with the mucosa of the mouth alerts him to deviations

from its normal colour. Besides mucosal pallor which is common to all anaemias, other oral signs and symptoms are among the earliest manifestations of some of the anaemias. Mucosal petechiae and ecchymoses, fissures at the angles of the mouth, glossitis and glossodynia are some of the signs and symptoms of disturbance of the 'erythron.'

The commonest anaemias are of the deficiency type, resulting from blood loss (acute and chronic haemorrhage) or nutritional insufficiency (iron, vitamin B group) or lack of haemopoietic principle. Iron-deficiency anaemias are most frequent, predominant in females (menstruation, pregnancy), and, when achlorhydric in origin, produce atrophic glossitis and dysphagia (Plummer-Vinson syndrome). Lack of intrinsic factor produces pernicious anaemia, characterized, among other findings, by yellow pallor and beefy red tongue.

Haemolytic anaemias display jaundice, and erythrocytolysis may be hereditary or acquired. Bone marrow damage, caused by toxins, radiation or malignant invasion, produces aplastic anaemia that may manifest necrotic lesions in the oropharynx.

Diagnosis and treatment of anaemia should ideally be undertaken prior to oral surgery. While haemostasis is not necessarily impaired, deficient tissue oxygenation accompanying anaemia impairs the healing of surgical wounds. Healing is more likely to be complicated in an anaemic patient than otherwise, especially if there is concomitant leucopenia. Blood loss accompanying surgery exacerbates the existing haemoglobin deficiency. In an emergency dental surgery should not be postponed for correction of anaemia, since haemorrhage will not normally occur, particularly in chronic anaemia, unless pre-existing. Acute anaemias tend to exhibit thrombocytopenia, presaging the possibility of haemorrhage.

General anaesthesia should be avoided in anaemia because of greater blood loss during oral surgery than with the use of adrenalin-containing local anaesthetics. The depleted haemoglobin level fails to exhibit cyanosis in the event of tissue anoxia, constantly imminent in anaemia.

National Convention

Board of Governors Meeting

The annual meeting of the Board of Governors of the Canadian Dental Association will be held at the Royal York Hotel, Toronto, beginning at 9.30 a.m. on Wednesday, May 10 and continuing through Saturday, May 13, 1967. The meeting is open to all members of the Association who are urged to attend and participate in the deliberations.

National Convention

The national convention of the Canadian Dental Association will be held in the Royal York Hotel, Toronto, beginning Sunday, May 14 and continuing through Wednesday, May 17, 1967.

J. P. COUPLAND—President
W. G. McINTOSH—Secretary

Early Registration, Hotel Reservation Recommended

Convention Chairman R. G. Ellis urges delegates to register early so as to avoid possible disappointment at certain social events which operate on a 'first come first served' basis. Complete the registration form in this issue of the Journal and mail it with your cheque to CDA-ODA Convention, 230 St. George Street, Toronto 5, Ontario.

As there is no housing committee, dele-

gates should make their own reservations as soon as possible in a Toronto hotel of their choice.

Important Announcement Regarding Convention Luncheons

The Monday, Tuesday and Wednesday (May 15-17) luncheons will commence sharply at 12:15 p.m. Latecomers will be seated depending on the availability of accommodation.

Convention Highlights

SUNDAY, MAY 14

8:15 Concert Centennial

MONDAY, MAY 15

8:30 Dental public health breakfast
9:30 Table clinics
10:15 Radiology—H. M. Worth, Vancouver
12:15 Luncheon—A. W. Trueman, London, Ontario
2:15 Grieve Memorial Lecture—D. G. Woodside, Toronto
2:30 Projected clinics
2:30 Scientific films
3:15 Endodontics—J. I. Ingle, Los Angeles
8:30 Birthday party

TUESDAY, MAY 16

9:30 Prosthodontics—D. D. Krajicek, Wadsworth, Kansas
9:30 Group clinics
12:15 Luncheon—D. W. Gullett, Toronto
2:30 Scientific films
2:30 Group clinics
2:30 CDA presentation—H. Hillenbrand, Chicago
4:00 RCDC Association
9:30 Barn raising bee

WEDNESDAY, MAY 17

9:30 Oral medicine—L. W. Burket, Philadelphia
9:30 Group clinics
12:15 Luncheon—Arthur Porter, Toronto
2:30 Study club seminars
3:15 Panel on pain control—B. Geneen, S. P. Starkman, C. D. Torneck, Toronto
8:00 Centennial ball

Centennial Convention
Ontario Dental Association
Canadian Dental Association
May 14-17, 1967

Congrès du centenaire
Association dentaire de l'Ontario
Association dentaire canadienne
14 au 17 mai, 1967

TORONTO
Royal York Hotel

Registration • Inscription

Name/nom _____
Surname/nom _____

Christian name/prénom _____

Address/adresse _____
Street/rue _____

City/ville _____

Province _____

Wife's name (if attending) → _____ ← Prénom de votre épouse (si elle vous accompagne)

Please check appropriate squares:

SVP pointer les carrés appropriés:

☐ Convention fee \$15
(includes dentist's admission to three luncheons plus Sunday, Monday and Tuesday evening entertainment)

☐ *Inscription au congrès \$15 (comprend les trois déjeuners de même que les activités de dimanche, lundi et mardi soir)*

☐ Ladies' convention fee \$12
(includes three evening functions plus 'Ladies only' breakfast, two luncheons and award fashion show)

☐ *Inscription des dames \$12 (comprend les activités du soir, le petit déjeuner des dames, deux déjeuners et la présentation de modes)*

☐ Presidents' Dinner and Dance: Wednesday. \$20 per couple. Advance tickets only. First come, first served

☐ *Dîner et bal des présidents: mercredi. \$20 le couple. Billets réservés seulement. Premier rendu, premier servi*

Cheque enclosed for \$ _____ payable **at par** to 1967 Joint Convention.

*Ci-inclus chèque de \$ _____ payable **au pair** à l'ordre du Congrès conjoint de 1967.*

Mail to/expédier à:
CDA-ODA Convention
230 St. George Street
Toronto 5, Ontario

Restorative Dentistry Group Meets

The Canadian Academy of Restorative Dentistry has scheduled an all-day scientific meeting at the Faculty of Dentistry, University of Toronto, Saturday May 13. Registration begins at 8.30 a.m. Non-members may attend if invited by a sponsoring academy member and upon payment of the registration fee of \$10.

The morning lecture program begins with a panel discussion on restorative requirements in the gingival third area. Participants and their sub-topics are: M. A. Listgarten, Toronto, "Effect of Restorative Dentistry on the Periodontium;" E. M. Madlener, Toronto, "Bacteriological Environment of the Gingival Third Area;" Z. Kasloff, Winnipeg, "Review of the Various Restorative Media with Reference to Margins Lying Below the Free Gingival Tissues;" and A. Retzlaff, Winnipeg, "Pulpal Responses to Operative Procedures."

Following the panel, S. R. Katz, Winnipeg, will describe "A New Concept in Porcelain Jacket Preparations" and J. A. Davison, Scarborough, Ontario, will present a review of the 1966 literature on restorative dentistry.

A clinical program will follow in the afternoon.

Further information may be obtained from J. D. Purves, 170 St. George Street, Toronto 5, Ontario.

Orthodontists Set to Meet May 14-17

Members of the Canadian Society of Orthodontists will begin their annual scientific meeting Sunday May 14 with an afternoon reception at 59 Ridge Drive, Toronto. Scientific sessions are slated for Monday, Tuesday and Wednesday May 15-17.

Clinicians and their tentative subjects include: B. F. Swain, Morristown, New Jersey, "Clinical Orthodontics;" Egil Harvold, Tiburon, California, "Training the Graduate in Orthodontics" and "Growth and Development;" A. W. Eastwood, Halifax, "Orthodontics in Public Health;" and D. G. Woodside, Toronto, who will present the Grieve Memorial Lecture.

Further information may be obtained from J. J. Schachter, 209 Canada Building, Saskatoon, Saskatchewan.

Perio Meeting to Feature TM Joint, Bone Nutrition and Tissue Breakdown Discussions

Five leading clinical and research authorities will discuss anatomical, radiological, surgical, pathological, neurological and dental considerations in temporomandibular joint dysfunction at the annual scientific meeting of the Canadian Academy of Periodontology. Participating at the Monday May 15 symposium



CDA-ODA EXHIBIT OF ART

PAINTINGS

HANDICRAFTS

SKETCHES

DRAWINGS

PHOTOGRAPHIC
PRINTS

PHOTOGRAPHIC
SLIDES

A special section for Centennial Year will show exhibits pertaining to or suggestive of '100 Years.'

See it Mon. Tues. Wed. 9:00 a.m.-5:00 p.m.
Convention Mezzanine

See the Early Canadian Dentist in his Office of 1867

A MUSEUM RE-CREATION SHOWING DENTAL FACILITIES OF A CENTURY AGO.

See it at the
CDA-ODA Centennial Convention
in the Saskatchewan Room
Mon. Tues. Wed. 9:00 a.m.-5:00 p.m.

are: Harry Sicher, Chicago; H. G. Poyton and T. B. Van de Mark, Toronto; M. M. Ash, Jr., Ann Arbor, Michigan; A. T. Storey, Toronto; Harry Rosen, Montreal; and H. H. Hyland, Toronto.

There will be two lectures on Tuesday morning May 16. W. R. Harris, orthopaedic surgeon at Toronto General Hospital and Sunnybrook Hospital, Toronto, will describe the mechanism of nutrition in bone and its effect on bone transplantation. H. L. Freedman, Toronto, will speak on tissue breakdown as a result of inflammatory disease.

Meetings will be held May 15-16 at the Royal York Hotel (not May 13-14 at the Inn-on-the-Park as originally intended).

Further information may be obtained from Ronald Golden, 1849 Yonge St., Toronto 7, Ontario.

Dental Assistants Plan Four-Day Meeting

A busy round of scientific, business and social activities awaits dental assistants when they arrive at Toronto's Royal York Hotel for the four-day convention of the Canadian and Ontario Dental Nurses and Assistants Associations May 14-17.

Social activities begin with an official reception Sunday evening May 14. All-day scientific sessions are slated for Monday, Tuesday and Wednesday. These are interspersed with annual business sessions—for the Ontario association on Monday at 10.30 a.m., for the Canadian



association on Tuesday at 10.30 a.m., and for the installation of officers on Wednesday at 10.45 a.m.

A Monday luncheon is scheduled at the Royal York Roof Garden. On Tuesday night the Ontario association will hold its annual banquet and ball.

The Association

Dr. Bradley, Former CDA President and Secretary, Dies in Ottawa

Dr. Sydney W. Bradley, past president of the Canadian Dental Association, died in Ottawa February 20 at the age of 87. Long active as a practising orthodontist and officer of dental organizations, he was secretary of the CDA from 1916 to 1920 and president from May 1922 to August 1924.

Born at Hazeldean, Ontario, September 3, 1879, Dr. Bradley was a school teacher before entering the dental school of the Royal College of Dental Surgeons of Ontario where he graduated in 1906. After

graduation he practised at Richmond, Ontario, until 1918, then took specialty training in orthodontics and established himself in that capacity in Ottawa. He soon gained the acclaim of his colleagues who elected him president of the Dewey Orthodontic Alumni and vice-president of the Northeastern Association of Orthodontists.



S. W. Bradley

In addition to a long and distinguished career as a specialist, Dr. Bradley was notable for his leadership in organized dentistry. His name is one of four which grace the 1942 charter of incorporation and constitution of the CDA. Apart from his appointments with the national association, he also served as president of the Ottawa Dental Society and the Eastern Ontario Dental Association. From May 1945 to May 1947 he presided over the Royal College of Dental Surgeons of Ontario.

In tribute to his many contributions to dentistry, the CDA conferred on him its highest honour — honorary membership — at the national convention in 1951. His other honours included an honorary membership from the Ontario Dental Association, conferred in 1942. In 1950 he was made a fellow of the American College of Dentists.

In a recent telegram to Dr. Bradley's widow, CDA Secretary W. G. McIntosh said: "The dental profession grew in stature as a result of Dr. Bradley's dedicated and generous services to his patients and to organized dentistry," adding that "The profession will be eternally grateful to him." The most sincere sympathy of Canadian dentistry is offered to Mrs. Bradley.

Executive Votes for Independent National Conventions

The Executive Council, in what may be a landmark decision, has approved the principle of holding independent CDA national conventions directed by a standing committee responsible to the Board of Governors. This proposal received Council preference over two alternative suggestions—(1) an arrangement whereby the Association makes annual grants and permits use of the term 'CDA-XDA joint convention' but does not participate in the planning of such convention, or (2) CDA annual meetings consisting of annual sessions of the Board of Governors only and scheduled at a time and place to be determined periodically by the Board.

The Council, at its February 13-15 meeting, observed that "the present system of operating annual meetings is outmoded and, in fact, has been changing little by little over the years. . . . A more general policy should be adopted now in order that planning may begin toward later implementation [after 1970]."

In a separate action, the Council noted the difficulty some dentists have in obtaining satisfactory malpractice liability insurance, and urged that all corporate members of the CDA develop group malpractice coverage for their members.

In other actions, the Council:

Requested the secretary to prepare a five year projection of the Association's revenue needs;

Approved a statement of principles governing the CDA reserve fund;

Approved provisional recognition of the Canadian Society of Public Health Dentists as a section of the CDA, and recommended a moratorium on the addition of further sections until the completion of a current study of section and specialty recognition by the Specialists and Specialization Committee;

Appointed a subcommittee (W. P. Munzie, Vancouver, and H. R. MacLean, Edmonton) to draft a new policy statement on projection of dental services for subsequent consideration by corporate members and appropriate committees and councils;

Asked the Advisory Committee on Commercial Insurance to continue its feasibility studies of a possible nation-

wide dental legal protective association;

Raised the fee for associate memberships to \$10;

Designated Windsor, Ontario, as the locale for the 1971 national convention (June 28-30 Board of Governors; July 1-3 convention); and

Named W. G. McIntosh an official delegate to the annual conference of the British Dental Association at Birmingham, England, July 24-29.

Executive Approves Comparative Insurance Survey

The CDA Executive Council, meeting February 13-15, has authorized a survey of the parallel group office overhead, life and income protection insurance programs provided through the Canadian Dental Association and through the Royal College of Dental Surgeons of Ontario and the Ontario Dental Association.

The investigation calls for a comparison of the merits of:

A full-time professional advisory service provided by an insurance broker versus a part-time advisory service offered by a dental committee supplemented by a salaried part-time independent professional adviser;

Premium collection by a private company versus a non-profit company operated by the dental profession; and

Incorporation of a retention factor versus a non-sharing fixed premium structure in the group contract.

This action results from recommendations that emanated from a January 6 meeting between the CDA Advisory Committee on Commercial Insurance and the RCDS/ODA Insurance Committee. The study is expected to follow if the proposed terms of reference are approved by the RCDS/ODA. In that event, the CDA Executive Council agreed that CDA Secretary W. G. McIntosh and RCDS Secretary K. F. Pownall should negotiate the necessary contract with the company selected for this survey. Council also gave its approval to a three man steering committee for the project. The members are R. A. Hugill, Toronto, for RCDS/

ODA; P. S. Christie, Halifax, for CDA; and O. J. Yule, Toronto.

PIPL Audit Completed

An independent audit of Professional and Industrial Pension's Limited, administrative agency for CDA-sponsored pension and insurance plans, has confirmed that dentists' deposits are properly handled and transferred to appropriate insurance and trust companies at the proper time. This is the cardinal finding of the audit as reported to the CDA Executive Council at its meeting in Toronto February 13-15. The investigation resulted from an October 31, 1966 resolution by the CDA Advisory Committee on Commercial Insurance which requested such an audit in accordance with the provisions of the trust agreement between CDA and PIPL.

The auditors reported that:

All funds received from dentists by PIPL are paid over to the appropriate trust or insurance company on the due dates and in the amounts billed;

Any unearned premiums due to estates of deceased dentists are correctly refunded;

All appropriate rebates or refunds of premiums are duly made to dentists; and

The commercial blanket bond taken out by PIPL constitutes an adequate safeguard against losses from defalcation.

The auditors commended the officers of PIPL for the extent of their service and for their effort in determining the most economic premium for suitable coverage.

Auxiliary Services Committee Proposes National Certification Board for Dental Assistants

The Auxiliary Services Committee, meeting in Toronto January 19-20, approved a proposal for the establishment of a national certification board for dental assistants. Details were outlined in the report of a subcommittee which met January 18 with representatives of dental

assistants from across Canada. Aims of the proposed certification board are:

1. To establish national standards of training so that dental assistants may move freely from one area to another without losing their status and usefulness;

2. To conduct examinations for certification of dental assistants;

3. To review training curricula from time to time to ensure their constant progress to conform with new developments in the field of dental health, and to accredit all training programs for dental assistants; and

4. To raise the standard of the present dental assistant from an untrained helper to a properly qualified and efficient member of the dental health team.

The proposal has been sent to the Council on Education for consideration at its March 8-9 meeting. It will also be submitted to the Board of Governors in May. In pointing out the need for a certification program, the Auxiliary Services Committee urged that a national board be established without delay.

In other actions, the Committee:

Decided to investigate the feasibility of training a single type of auxiliary capable of performing the services now divided between the dental hygienist and dental assistant;

Recommended that the CDA policy statement on auxiliary personnel continue to be the basis for limiting the role of the dental hygienist;

Reiterated support for the conduct, at dental schools, of pilot studies on the duties of auxiliary personnel; and

Recommended additional controlled experimentation, under the direction of provincial corporate members, in expanded functions of dental hygienists and dental assistants.

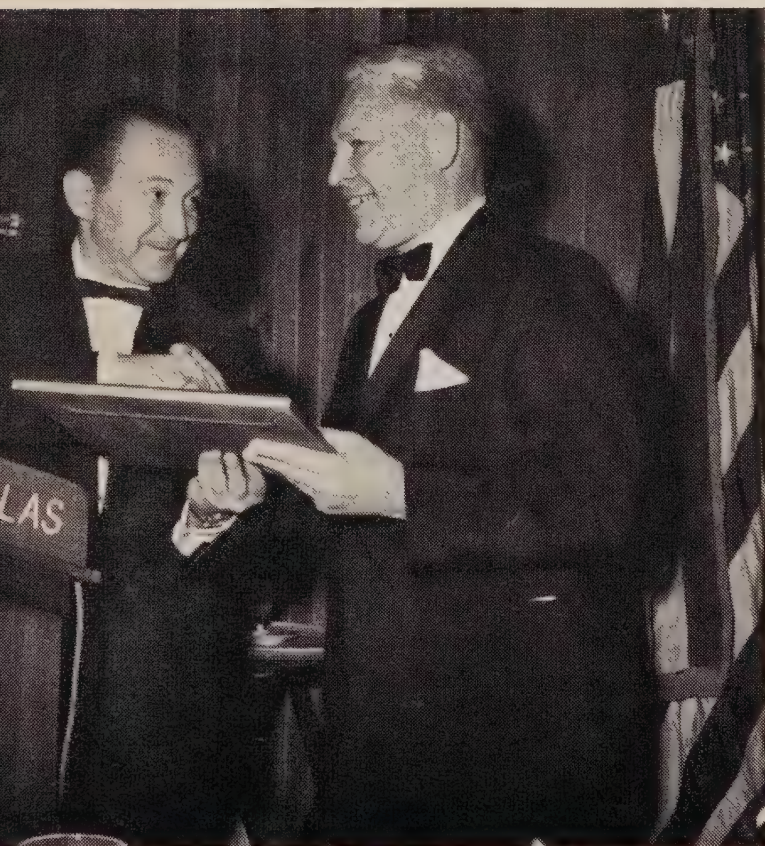
In response to the report from a subcommittee which met with representatives of the dental laboratory industry January 18, the Auxiliary Services Committee agreed that a further conference of this nature in 1968 would be useful.

Canada and the Provinces

Ontario Health Science Faculties Face Teacher Shortage

Ontario universities face a serious shortage of health science teachers, according to a report released January 17 by the Committee of Ontario University Presidents.

Current construction at Toronto, Western, Queens, Ottawa and McMaster Uni-



Herbert Caplan (l.), past international president of the Alpha Omega Dental Fraternity, presents to CDA President J. P. Coupland a plaque in acknowledgement of Canada's contribution to dentistry around the world. The presentation was made at Dallas, Texas, last November. The certificate was pictured on page 43 of the January Journal.

versities is expected to double the number of students in health science courses over the next 10 years, says the report. Medical graduate and undergraduate enrolment will jump from the present 2,373 to 4,549; enrolment in dentistry, nursing, pharmacy, physiotherapy and occupational therapy, speech therapy and public health will likely increase from the present 2,637 undergraduates and graduates to 4,944 in the next decade.

The university presidents estimate they will need an additional 1,867 postgraduate teachers and scientists by 1975—about 1,100 more than are available at present.

New teaching facilities, expected to open in three years' time, will abruptly increase student enrolment and precipitate a sudden demand for additional trained teachers and scientific equipment.

The report anticipates difficulty in securing the necessary staff unless Canadian teachers and scientists are encouraged to pursue academic careers and return to Canada following postgraduate training abroad. Otherwise, said the report, the new buildings could very well become an embarrassment to the universities and to the province.

Castonguay Commission to Probe Quebec Health Needs

Wide ranging terms of reference have been announced for an eight member commission that is to probe Quebec's health and welfare services. The details were disclosed November 10, 1966 by the province's health and welfare minister, Jean-Paul Cloutier. The commission will be headed by an actuary, Claude Castonguay.

Among other things, the commission will report on the establishment of a provincial health insurance plan, the provincial medical act and the role of medical and paramedical groups, the role of associations representing the health professions, public health and preventive health services, medical and paramedical manpower, education, and health research.

The Quebec government estimates that the Castonguay Commission will require

Royal College of Dentists Postpones Part I Exam

Owing to the unexpectedly large number of candidates applying for the initial interim examination for fellowship in the Royal College of Dentists of Canada, there has been insufficient time to prepare adequately the Part I (Basic Sciences) examination. Accordingly, the Council of the College, at a recent meeting, agreed to postpone the Part I examinations until September 29 and 30, 1967. Therefore, applications for this examination will now be accepted until June 30, 1967. Application forms and brochures may be obtained from the Secretary, Royal College of Dentists of Canada, Suite 614, Medical Arts Building, 170 St. George Street, Toronto 5, Ontario.

at least \$200,000 to complete its assignment by January 1, 1968.

International Items

Paris World Congress to Feature Art Exhibit

The officers of the FDI Paris World Dental Congress invite Canadian dentists and dental students to submit paintings, sculpture, engravings, drawings and other applied art for display at the congress art exhibition July 7-13. Participation is free and part of the shipping charges will be borne by the congress.

Those wishing to display their work should write immediately to M. Corniou, chairman, Art Exhibition Committee, FDI World Dental Congress, 22 avenue de Villiers, Paris 17e, France, for an application form and a copy of the rules of the art exhibition.

To ensure timely arrival of their work in Paris, Canadian exhibitors should contact before April 30 a local agent in Can-

ada for the officially designated French shipping firm M. Chenue, Packers, 5 rue de la Terrasse, Paris 17e, France.

Historical Exhibit at Paris World Congress

Dentists, private collectors and antique dealers are invited to submit interesting objects, instruments, drawings, engravings, paintings and documents for display at the International Exhibition on the History of Dentistry at the FDI Paris World Dental Congress July 7-13. Exhibits will be generally limited to those dating from before the end of the eighteenth century. Particularly in demand are finely decorated instrument cases, pelicans, punches, and old forceps.

Those who wish to submit historical specimens should write before March 31 to S. Popesco, 47 rue Claude-Lorrain, Paris 15e, France, indicating the nature, size, weight and value of each item being offered. Additionally, donors of paintings are asked to include a good 5 by 7 inch photograph of each painting. From this information congress officials will select the items to be displayed. Insurance and shipping charges to and from Paris will be paid by the congress for items accepted for display.

New Paedodontic Society Formed in France

French dentists interested in dentistry for children have established a new paedodontic organization. Known as the French Paedodontic Society (Société Française de Pédodontie), the group has its headquarters at 37 rue de Rivoli in Paris. M. M. Schouker is the executive secretary.

Iranian Dental Congress in Tehran September 5

Canadian dentists have been invited to attend the fifth congress of the Dental Society of Iran September 5. The meeting will be held at the Royal Tehran Hilton Hotel. Further information may

be obtained from Dr. Navab, secretary, Dental Society of Iran, 82 Hafez Avenue, Tehran, Iran.

Jasper to Host 1969 Pacific Dental Conference

The Pacific Dental Conference 14th Triennial Convention will be held at Jasper Park Lodge, Alberta, June 22-28, 1969. The Pacific Dental Conference is an organization comprising members and provincial or state dental associations of Alberta, British Columbia, Alaska, Arizona, Northern and Southern California, Hawaii, Idaho, Montana, Oregon, Utah and Washington.

M. J. Lipkind, Calgary, will be president of the 1969 conference. Further information may be obtained from D. M. Kovitz, secretary, P.O. Box 280, Station B, Calgary, Alberta.

Dental Hygienist at WHO Headquarters

Rhea Meyers, from Providence, Rhode Island, USA, has joined the Dental Health Unit at World Health Organization headquarters in Geneva. A graduate dental hygienist, Miss Meyers formerly worked with the New Mexico state health department. More recently she has served as director of the course in dental hygiene at the University of Rhode Island. At the WHO Dental Health Unit she will be in charge in the area of communications and information.

Dental Organizations

Dr. Picard Succeeds Dr. Brouillet as President of Quebec College

Lorenzo Picard of Sorel was elected president of the College of Dental Surgeons of the Province of Quebec on December 7, 1966. He succeeds Henri Brouillet of Montreal.

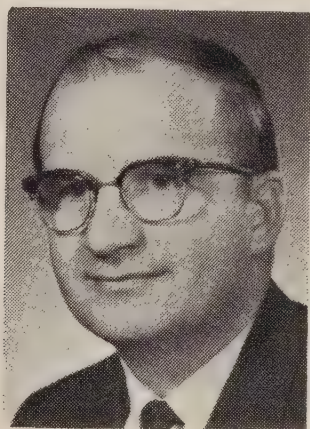
M. B. Archambault, Montreal, was selected first vice-president. J. M. Cha-

mard, Montreal, is second vice-president. R. M. LeBlanc, Montreal, continues as registrar-secretary.

Other members of the executive council are: Louis Bernier, Roger Charette, A. J. Colle, Roger Coulombe, Marius Crête, Claude De Grandmont, J. A. Giroux and Lindsay Mussells.

Halifax Society Elects Dr. Eisner

Halifax orthodontist D. A. Eisner has been elected president of the Halifax County Dental Society. Other members of the executive are T. E. Spracklin, vice-president; G. M. D. Conrad, treasurer; and D. M. J. Bonang, secretary.



D. A. Eisner

Dr. Danzinger Heads Manitoba Association

G. W. Danzinger, Winnipeg, was installed as president of the Manitoba Dental Association during the group's annual convention in the Manitoba capital January 20-21. He succeeds R. D. Glenn, also of Winnipeg. C. D. Rusen, Winnipeg, was named vice-president. W. G. Campbell remains as secretary-treasurer. Other members of the MDA board are: A. J. Shinoff, Winnipeg; W. R. Harwood, Brandon; and Fred Ollinik, Morgan.

A past president of the Winnipeg Dental Society, Dr. Danzinger has served on the MDA board since 1963. He received a DDS degree from the University of Toronto in 1940 and served thereafter with the Canadian Dental Corps in Canada, England and Europe until 1946.

The installation ceremony was the



G. W. Danzinger

highlight of one of the most successful clinical meetings ever held by the Manitoba association. Featured clinicians and their topics included H. M. Tanner of California, crown and bridge prosthodontics; Israel Kleinberg and C. R. Castaldi, both of Winnipeg, topical fluorides and fluoridation; and A. J. Shinoff, relative value fee system. Another star attraction was a projected clinic presented by the Paedodontic Study Club of the Winnipeg Dental Society.

Distinguished guests included CDA President J. P. Coupland and Mr. Saul Cherniak, a member of the Manitoba legislature.

Western Canada Convention Postponed

The 1967 meeting of the Western Canada Dental Society, originally scheduled for October 2-5, has been postponed to October 8-11. The meeting will be held at the Hotel Saskatchewan in Regina. Further information may be obtained from J. A. B. Robinson, 200 Medical and Dental Building, Regina, Saskatchewan.

Royal Canadian Dental Corps

Three Officers on Short Courses

Three RCDC officers are currently attending short refresher courses in the United States.

Maj. H. W. Brogan is taking a course in

interceptive orthodontics at the University of Michigan. Maj. J. L. Y. Cyrenne is at the US Naval Dental School, Bethesda, Maryland, where he is taking a refresher course in oral surgery. Maj. C. J. Sivell is also taking a course in oral surgery at Ent Air Force Base, Colorado Springs, Colorado.

Economics

CDSPQ Reasserts Role of Spokesman on Quebec Dental Insurance

The College of Dental Surgeons of the Province of Quebec, acting on legal advice, has reiterated its right to speak for Quebec dentists in matters affecting dental health insurance. This action is a response to the dental Professional Association Syndicate, a union-type organization formed last year in Quebec (see page 684, November 1966 Journal).

Pre-eminence of a special act (the Quebec Dental Act, which authorized creation of the CDSPQ) over a general act (the Professional Syndicates Act, which authorized creation of the Professional Association Syndicate) and full jurisdiction of the College over all aspects of dental organization were the reasons which prompted the College to adopt the following resolution December 7, 1966:

"Resolved that the Provincial Board of Dental Surgery act in the name of the profession to take all necessary decisions, and conclude all the most suitable contracts within the framework of any dental health insurance plan or any other social security plan affecting dental surgeons. . . ."

Saskatchewan Preparing New Fee Schedule

The Council of the Saskatchewan College of Dental Surgeons has appointed a special committee to prepare a new fee schedule based on the CDA's relative value method of fee determination. The Council hopes that an interim report will

be available in time for the College's spring meeting and that the new fee schedule will be ready for presentation to the Council at the 1967 fall meeting.

Alberta Association to Investigate Use of Auxiliaries

The Alberta Dental Association will launch an investigation into the utilization of auxiliary personnel in dental practice. This action stems from a brief submitted by the provincial association's Planning Committee which asked that the ADA Board "give direction to the dental practitioners . . . on the legal and ethical utilization of auxiliary personnel."

The committee recommended that the Alberta Dental Association:

Establish an auxiliary services committee;

Analyse the various categories of auxiliary activity; and

Produce "a co-ordinated, concise, well delineated definition of the legal and ethical limits of auxiliaries. . . ."

Failure to do so, the committee contended, "can only result in a chaotic state of infringement of one category of auxiliary upon another, evidence of which is already being seen."

New ADA Council on Prepayment

The American Dental Association has established a new Council on Dental Care Programs. Administration and financing of group dental care programs, formerly a responsibility of the ADA Council on Dental Health, has been transferred to the new council.

Fluoridation

Connecticut Fluoridation Law in Effect

The only state fluoridation law in the United States went into effect in Connecticut January 1. In its first phase, the law requires fluoridation by all water

companies with more than 50,000 customers. The minimum figure drops gradually so that by October of this year, when the figure drops to 20,000, about 88 per cent of the residents of Connecticut will receive fluoridated water.

Britain's Health Minister Upholds Fluoridation

The Minister of Health, replying to a question in the British Parliament regarding alternative methods of administering fluorides other than through water fluoridation, reaffirmed his view that "no alternative method has been found to have the advantages of fluoridation of water supplies, which, at the approved dosage, is simple, effective and completely safe."

Research

New ADA Council on Dental Materials

The American Dental Association has created a new Council on Dental Materials and Devices. Standardization and certification of materials, formerly a responsibility of the ADA Council on Dental Research, have been transferred to the new council. Its primary duty will be to determine the safety and effective-

ness of materials and devices offered to the public and the profession in the United States. The council will also encourage the development and improvement of materials and devices for use in dental practice or to improve the oral health of the public. The council will also prepare future editions of the ADA publication *Guide to Dental Materials*.

Fluoride Inhibits Bone Resorption In Vitro

Tissue culture research supported by the US National Institute of Dental Research indicates that fluoride acts directly on bone to prevent bone resorption rather than increase bone production, and suggests the use of topical applications to treat some cases of periodontic disease.

Because bone resorption is a serious problem in periodontic disease, there is interest in using fluoride to check this process. Fluoride increases the proportions of calcium and bone and has relieved some cases of osteoporosis and Paget's disease. It is conjectural, however, as to whether fluoride acts to increase bone formation or to decrease bone resorption, and in what concentrations it is effective.

According to Paul Goldhaber of the Harvard School of Dental Medicine, tissue culture studies of five day mouse skull bones showed that additional fluoride, in concentrations of 1.9 ppm, checked the bone resorption caused by adding parathyroid extract to the medium without affecting new bone formation. Dipping these bones for one minute in fluoride solutions ranging from 1,900 to 19,000 ppm, and then rinsing three times before culturing, does not harm growth or development but does inhibit bone resorption in the culture medium.

Sugar, Cavities:

The American Dental Association has reiterated its stand that there is a causal relationship between sugar and dental caries. The ADA denied a recent publication by the US National Confectioners Association which said that dental spokesmen "are becoming noticeably less adamant when it comes to banning candy and other sweets from youngsters' diets." The ADA urged the confectioners' association to conduct research to lessen the decay-causing qualities of candy.

Awards and Honours

C. H. M. Williams, Toronto, was named president-elect of the American Academy of Periodontology in November 1966. Dr. Williams is professor and head of the Department of Periodontics, University of Toronto.

Deaths

- Bradley, Sydney W. 87. Ottawa. Royal College of Dental Surgeons of Ontario, 1906. 20-2-67. Honorary member CDA. Survived by Mrs. S. W. Bradley (wife).
- Dent, Clarence Moise. 93. Ottawa. Royal College of Dental Surgeons of Ontario, 1904. 11-1-67. Associate member CDA. Survived by Dr. Lionel Dent.
- Kilburn, Lee Albert. 68. Oakville, Ontario. Royal College of Dental Surgeons of Ontario, 1923. 5-1-67. Associate member CDA. Survived by Isabel (wife), Mrs. M. Anderson (daughter) and Richard (son).
- L'Heureux, Arthur. Montreal. Loyola University (Chicago), 1924. 15-12-66.
- Marshall, John Arthur. 31. Prince George, British Columbia. Washington University School of Dentistry, 1961. 17-1-67. Survived by Carol (wife) and two children.
- McMahon, Roger E. 65. Montreal. McGill University, 1927. 4-1-67. Survived by J. Connell (brother).
- Miles, Stanley Frederick. 67. Victoria, British Columbia. North Pacific College, University of Oregon, 1923. 21-1-67. Survived by Betty (wife), Mrs. David Whittingham and Mrs. W. Bishop (daughters).
- Weese, Frank Adolphus. 72. Wallaceburg, Ontario. Royal College of Dental Surgeons of Ontario, 1920. 4-1-67.

in memoriam

Lee Albert Kilburn

Dr. L. A. Kilburn of Oakville, Ontario, died on January 5, 1967, at the age of 68. He was born in Keswick Ridge, near Fredericton, New Brunswick, in 1898.

Dr. Kilburn commenced his studies in forestry at the University of New Brunswick but forsook them in 1916 to enlist in the Royal Canadian Artillery. Following distinguished service in France and Belgium, he returned to Canada and enrolled in the Royal College of Dental Surgeons of Ontario, graduating in 1923. He practised in Hamilton, Ontario, for 19 years. In 1942 he enlisted in the Canadian Dental Corps from which he retired in 1946 with the rank of lieutenant-colonel.

In 1946 Dr. Kilburn was appointed district supervising dentist for the Department of Veterans Affairs and in 1948 became director of dental services, a position which he held until his retirement in 1963. For his outstanding contributions to his country and his profession he was awarded a fellowship in the International College of Dentists.

Dr. Kilburn is survived by his wife, Isabel of Oakville, a daughter, Mrs. Morgan Anderson of Winnipeg, and a son, Richard of London, England.

ON OUR COVER: One hundred years ago Canada's oldest dental society was organized at Cobourg, Ontario. Led by W. B. Day of Kingston, the Ontario Dental Association paved the way for incorporation of the profession in Ontario and enactment of Canada's first dental practice act. This act, passed at the first sitting of the first legislature of Ontario and accorded royal assent on March 4, 1868, established the Royal College of Dental Surgeons of Ontario. Our cover shows a photograph of the first page of the original RCDS register which the College maintains at 230 St. George Street, Toronto. Superimposed are the symbol and theme of the 1967 CRA-ODA centennial convention.

Congrès national

Réunion du Conseil des Gouverneurs

La réunion annuelle du Conseil des Gouverneurs de l'Association dentaire canadienne aura lieu à l'hôtel Royal York de Toronto du 10 au 13 mai 1967. Tous les membres peuvent assister à ces assemblées et prendre part aux délibérations; les dirigeants de l'Association les y invitent avec instance.

Congrès national

Le congrès national de l'Association dentaire canadienne aura lieu au même hôtel du dimanche, 14 mai, au mercredi, 17 mai.

J. P. COUPLAND, Président

W. G. McINTOSH, Secrétaire

Conférence du Dr Hillenbrand, secrétaire de l'ADA



Le Dr Harold Hillenbrand

Le docteur Harold Hillenbrand, secrétaire de l'American Dental Association, prononcera une conférence lors du congrès de l'ADC, sur les aspects socio-économiques de la dentisterie. L'ADC organise régulièrement des entretiens de ce genre à l'occasion de ses congrès nationaux.

La conférence du Dr Hillenbrand est prévue pour le mardi 16 mai à 2h30 de

l'après-midi, et portera sur le programme d'assurance dentaire pour enfants, récemment adopté par l'American Dental Association.

Réunion de l'Académie canadienne de dentisterie restaurative

L'Académie canadienne de dentisterie restaurative tiendra une réunion d'un jour à la Faculté de chirurgie dentaire de l'Université de Toronto, le samedi 13 mai. L'inscription débutera à 8h30 du matin. Les personnes qui n'en sont pas membres peuvent y assister sur l'invitation d'un membre et en payant les frais d'inscription (\$10.00).

Le programme de la matinée s'ouvrira par une discussion d'experts sur les restaurations du tiers gingival. Le docteur M. A. Listgarten, de Toronto, parlera de "l'effet de la dentisterie restaurative sur le périodonte;" le docteur E. M. Madlener, de Toronto, de "la bactériologie du tiers

gingival;" le docteur Z. Kasloff, de Winnipeg, passera en revue "les différentes techniques restauratives en relation avec les problèmes que pose une paroi subgingivale" et le docteur A. Retzlaff, de Winnipeg, traitera "des réactions de la pulpe aux interventions."

Après la discussion, le docteur S. R. Katz, de Winnipeg, traitera des coiffes de porcelaine et le docteur J. A. Davison, de Scarborough, Ontario, passera en revue les articles publiés en 1966 sur la dentisterie restaurative.

L'après-midi est réservé à un programme clinique.

Pour tous renseignements, écrire à J. D. Purves, 170 St. George Street, Toronto 5, Ontario.

Réunion des orthodontistes du 14 au 17 mai

La réunion annuelle de la Société canadienne d'orthodontie débutera le dimanche 14 mai dans l'après-midi par une réception qui aura lieu au no 59 Ridge Drive, à Toronto. Les séances scientifiques auront lieu les lundi, mardi et mercredi, 15, 16 et 17 mai.

Les conférenciers sont les docteurs B. F. Swain, de Morristown, New Jersey (Orthodontie clinique); Egil Harvold, de Tiburon, Californie (La formation de l'étudiant en orthodontie) et (Croissance et développement); A. W. Eastwood, de Halifax (L'orthodontie et l'hygiène publique); et D. G. Woodside, de Toronto, qui prononcera la conférence du Memorial Grieve.

Pour tous renseignements, s'adresser à J. J. Schachter, 209 Canada Building, Saskatoon, Saskatchewan.

Au programme de l'Académie de périodontie: Articulation TM, nutrition osseuse et destruction tissulaire

Cinq éminentes personnalités du domaine de la recherche et de la clinique discuteront des aspects anatomique, radiologique, chirurgical, pathologique, neurologique et dentaire de la dysfonction de l'articulation temporo-maxillaire, lors de

la réunion annuelle de l'Académie canadienne de périodontie. Les participants du symposium du lundi 15 mai sont les docteurs Harry Sicher, de Chicago; H. G. Poyton et T. B. Van de Mark, de Toronto; M. M. Ash, Jr., de Ann Arbor, Michigan; A. T. Storey, de Toronto; Harry Rosen, de Montréal et H. H. Hyland, de Toronto.

Il y aura deux conférences le mardi 16 mai dans la matinée. Le docteur W. R. Harris, chirurgien orthopédiste au General Hospital et au Sunnybrook Hospital de Toronto, traitera du processus de la nutrition osseuse et de son effet sur la greffe osseuse. Le docteur H. L. Freedman, de Toronto, parlera de la destruction tissulaire due aux lésions inflammatoires.

Pour tous renseignements, s'adresser à Ronald Golden, 1849 Yonge St., Toronto 7, Ontario.

Les assistantes prévoient une réunion de quatre jours

Le programme du congrès de l'Association canadienne des infirmières et assistantes dentaires et de l'Association de l'Ontario, qui aura lieu du 14 au 17 mai à l'hôtel Royal York de Toronto, sera des plus chargés.

Le congrès s'ouvrira par une réception officielle le dimanche 14 mai, en soirée. Les journées du lundi, du mardi et du mercredi seront entièrement occupées par des séances scientifiques entrecoupées de réunions concernant les affaires des associations — le lundi à 10h30 du matin pour l'Association canadienne, et le mercredi à 10h45 du matin pour l'entrée en fonction des nouvelles responsables.

Un déjeuner est prévu au Roof Garden du Royal York le lundi. Le banquet et le bal annuels de l'Association de l'Ontario auront lieu le mardi soir.

L'Association

L. H. Bowen entre au service de l'ADC

M. Lloyd H. Bowen, ancien secrétaire du Comité national pour la fluoration de la

Ligue canadienne de santé, est entré au service de l'ADC. Il sera attaché au Bureau de l'information au public.

M. Bowen était entré au service de la Ligue de la santé en 1959. Sa vaste expérience administrative lui a permis d'organiser le Comité national pour la fluoration et de s'y dévouer à promouvoir la fluoration au Canada.

Au Parlement fédéral

Les Communes amendent la loi sur l'assurance-maladie

Le 6 décembre, les Communes ont amendé la loi sur l'assurance-maladie de sorte que toute une série de services de santé dispensés par des praticiens non médecins pourront y être inclus à l'avenir.

L'amendement donne au cabinet fédéral le pouvoir de contribuer à tous les services médicalement justifiés qui seraient couverts par les régimes d'assurance provinciaux.

Par conséquent, lorsqu'une province désire assurer les services des dentistes, elle doit s'adresser au gouvernement fédéral. Si le cabinet accepte sa requête, il a le pouvoir d'accorder la participation fédérale. Si le cabinet la rejette, les nouveaux services assurés resteront entièrement à la charge de la province.

L'amendement du gouvernement, introduit lors de l'examen article par article du projet de loi C-227, supprime la plus grosse pierre d'achoppement. Plusieurs amendements avaient été proposés par les membres de l'opposition en vue d'élargir la définition des services assurés. Ces amendements furent rejetés car la procédure parlementaire exige que les amendements qui accroissent les dépenses soient proposés ou soutenus par le gouvernement.

Le projet de loi reçut sa troisième et dernière lecture aux Communes le 8 décembre. A propos de cet amendement, le secrétaire de l'ADC, le docteur McIntosh, a déclaré qu'il appartenait maintenant aux membres corporatifs de chaque province de veiller à l'inclusion des services dentaires.

Le Parlement étudiera les inégalités de traitement contre les médecins étrangers

Une enquête parlementaire aura lieu cette année sur l'inégalité de traitement dont les médecins étrangers seraient l'objet. Un rapport publié par le *Toronto Globe and Mail* à la fin de l'année dernière déclare que le Comité du Sénat et des Communes sur la politique d'immigration a invité l'Association médicale canadienne à lui soumettre un mémoire à ce sujet et s'attend à ce que des porte-parole de l'association témoignent devant le comité.

"Nous aimerions recevoir des informations sur les allégations voulant que des médecins qui ne sont pas citoyens se soient vu refuser le droit d'exercer", a déclaré M. L. Klein (Lib. Montréal Cartier), co-président du Comité avec le sénateur Léopold Langlois. Une petite localité de l'Ontario, a dit M. Klein, s'est plainte au comité de ne pas pouvoir obtenir de médecin. Il a affirmé que la question intéressait son comité car celui-ci étudie en ce moment le livre blanc sur l'immigration qui traite, en partie, de l'intégration des Néo-Canadiens.

Le comité a déjà reçu les témoignages du ministre de la Main-d'Oeuvre et de l'Immigration, M. Jean Marchand, des fonctionnaires de son ministère, et du docteur John Deutsch du Conseil économique du Canada.

Canada

Le Collège du Québec instaure un examen spécial permettant aux diplômés étrangers d'obtenir une licence

A partir du 1er octobre 1967, le Collège des chirurgiens-dentistes de la province de Québec autorisera les diplômés dentaires d'universités étrangères à subir un examen spécial, théorique et pratique, qui leur permettra d'obtenir une licence pour le Québec. Les candidats devront remplir certaines conditions précises et leurs dossiers seront soigneusement examinés avant qu'ils ne soient autorisés à subir l'examen spécial. Ils devront être des immigrants reçus ayant déclaré leur intention de

devenir citoyens canadiens. Ils devront justifier des études dentaires équivalant à celles qui sont exigées au Québec. Ils devront également avoir une bonne connaissance du français ou de l'anglais.

Les candidats qui auront réussi à l'examen recevront une licence temporaire en attendant d'obtenir leur citoyenneté. Ceux qui auront échoué devront obtenir un DDS d'une faculté dentaire affiliée à l'American Association of Dental Schools, avant de pouvoir se présenter à nouveau à un examen en vue d'obtenir une licence pour le Québec.

La Commission Castonguay examinera les besoins du Québec dans le domaine de la santé

Le ministre de la Santé, de la Famille et du Bien-Etre du Québec, M. Jean-Paul Cloutier, a rendu public le 10 novembre 1966 la composition et le mandat de la commission chargée d'enquêter sur les services de santé et de bien-être de la province.

La commission est présidée par M. Claude Castonguay, actuaire, et compte huit membres. Elle examinera entre autres, l'établissement de l'assurance-santé provinciale, l'acte médical et l'évolution de l'activité médicale et paramédicale, le rôle des associations professionnelles, les mesures d'hygiène et de prévention, les effectifs médicaux et paramédicaux, l'enseignement et la recherche.

Le gouvernement du Québec estime qu'il devra consacrer au moins \$200,000 à cette enquête pour qu'elle soit terminée le 1er janvier 1968.

En Ontario, les facultés des sciences de la santé manquent de professeurs

Selon un rapport rendu public le 17 janvier par le Comité des recteurs des universités ontariennes, celles-ci vont connaître une grave pénurie de professeurs de sciences de la santé.

Le rapport déclare que les travaux en cours aux universités Western, Queens, McMaster, à celle de Toronto et à celle d'Ottawa, doivent doubler en 10 ans le

nombre d'étudiants en sciences de la santé. Les inscriptions d'étudiants en médecine, diplômés et non diplômés, passeront de 2,373, chiffre actuel, à 4,549; les inscriptions en art dentaire, enseignement infirmier, pharmacie, physiothérapie et thérapeutique par le travail, orthophonie et hygiène publique, augmenteront vraisemblablement de 2,637 à 4,944 dans les 10 prochaines années.

Les recteurs estiment qu'ils auront besoin de 1,867 professeurs d'enseignement post-universitaire de plus, en 1975 — soit 1,100 de plus qu'ils n'en ont actuellement.

Dans trois ans, l'ouverture de nouveaux locaux provoquera une augmentation brusque du nombre d'étudiants et suscitera une demande soudaine de professeurs qualifiés et de matériel scientifique.

Le rapport prévoit que le recrutement de professeurs sera difficile si les enseignants canadiens ne sont pas encouragés à poursuivre leur carrière et à revenir au Canada après leur formation post-universitaire à l'étranger. Les nouveaux bâtiments risqueraient alors de devenir un fardeau inutile pour les universités et la province.

Révision du règlement concernant les services dentaires hospitaliers de l'Ontario

Des amendements, récemment apportés au Public Hospitals Act de l'Ontario, viennent remédier à une très ancienne carence des dispositions qui réglementent les services dentaires hospitaliers de l'Ontario.

Le règlement 523, qui traite de l'administration des hôpitaux, contient dans sa nouvelle version des dispositions régissant la nomination, l'organisation et les fonctions du personnel dentaire dans les hôpitaux publics.

Deux articles ont reçu des modifications importantes: l'article 30a, qui définit maintenant les conditions d'admission dans un hôpital, des malades ayant besoin d'un traitement dentaire, et l'article 35, qui autorise les dentistes à prescrire à leurs malades hospitalisés des médicaments ou d'autres traitements sans la signature d'un médecin de l'hôpital.

Manitoba: le dentiste peut ordonner l'hospitalisation dans un plus grand nombre de cas

Les règlements du Manitoba Hospital Services Insurance Act ont été modifiés et permettent maintenant aux dentistes d'hospitaliser leurs patients dans un plus grand nombre de cas.

Auparavant, les dentistes ne pouvaient hospitaliser que les patients qui devaient subir l'extraction de huit dents permanentes ou plus, de dents incluses, ou toutes extractions nécessitant des soins hospitaliers en raison d'une maladie systémique.

Les nouveaux règlements prévoient l'hospitalisation pour les cas suivants: extraction de six dents temporaires ou plus, dans trois quadrants ou plus, soins pour complications post-opératoires d'origine dentaire, préparation de ponts, traitement de tumeurs et kystes buccaux bénins, chirurgie périodentaire, correction chirurgicale de difformités osseuses, réduction de fractures des maxillaires, drainage d'infections d'origine dentaire.

Chronique internationale

Exposition artistique au congrès mondial de Paris

Les responsables du Congrès dentaire mondial de la F.D.I. à Paris invitent les dentistes et les étudiants dentaires canadiens à soumettre des tableaux, sculptures, gravures, dessins, et œuvres d'art appliqué, en vue de l'exposition artistique du congrès, qui aura lieu du 7 au 13 juillet. La participation est gratuite et le congrès assumera une partie des frais d'expédition.

Ceux qui désirent exposer leurs œuvres doivent demander sans retard une formule d'inscription et un exemplaire des règlements de l'exposition à M. Corniou, président du Comité de l'exposition d'art, Congrès dentaire mondial de la F.D.I., 22 avenue de Villiers, Paris 17e, France.

Afin de s'assurer que leurs œuvres arriveront à Paris en temps voulu, on conseille aux exposants canadiens de s'adresser avant le 30 avril à un agent local au

Canada de la firme française d'expédition officiellement désignée, M. Chenue, emballleurs, 5 rue de la Terrasse, Paris 17e, France.

Un deuxième Etat australien reconnaît le diplôme canadien

La Commission dentaire de l'Etat de Victoria, en Australie, a décidé de reconnaître le diplôme de toutes les facultés dentaires officielles du Canada et des Etats-Unis. Les diplômés de ces facultés peuvent donc maintenant s'enregistrer dans l'Etat de Victoria sans examen.

Auparavant, seuls les diplômés de l'université de Melbourne, des écoles dentaires du Royaume-Uni ou de l'un des quatre British Royal Surgical Colleges, pouvaient s'enregistrer sans examen dans l'Etat de Victoria.

Il y a deux ans, l'Etat de New South Wales avait reconnu les diplômes des facultés dentaires canadiennes et américaines.

Décès du Dr Skinner, spécialiste en matériaux dentaires

Le docteur E. W. Skinner, professeur honoraire de physique à la Faculté de chirurgie dentaire de l'Université Northwestern, et qui avait acquis une réputation internationale dans le domaine des matériaux dentaires, est décédé le 3 décembre à l'âge de 70 ans. Le Dr Skinner était récemment devenu directeur de la recherche de Coe Laboratories.

Organismes dentaires

Le Dr Picard président du Collège du Québec

Le docteur Lorenzo Picard a été élu président du Collège des chirurgiens-dentistes de la province de Québec, le 7 décembre 1966. Il succède au docteur Henri Brouillet de Montréal.

Le Dr M. B. Archambault, de Montréal, est devenu premier vice-président, et le



Le brigadier B. P. Kearney

Dr J. M. Chamard, de Montréal, deuxième vice-président. Le Dr R. M. LeBlanc, de Montréal, demeure registraire.

Les autres membres du conseil exécutif sont les docteurs Louis Bernier, Roger Charette, A. J. Colle, Roger Coulombe, Marius Crête, Claude de Grandmont, J. A. Giroux et Lindsay Mussells.

Nouvel exécutif de l'Association dentaire du Nord-Ouest québécois

A sa réunion du 9 décembre dernier, l'Association dentaire du Nord-Ouest québécois a élu son nouvel exécutif pour l'année 1967. Il s'agit des docteurs Luc Bertrand, président, Gilles Côté, vice-président, Paul-Yves Morissette, secrétaire, Claude Bellehumeur, trésorier. Les directeurs sont les docteurs François Brien, Jean-Guy Lafontaine et Gilbert Gamache.

Les élections ont eu lieu à la suite d'une journée d'étude au cours de laquelle les membres de l'Association se sont intéressés à la prothèse, au syndicalisme professionnel et aux activités du Collège des chirurgiens-dentistes de la province de Québec.

Corps dentaire royal canadien

Le brigadier Baird prend sa retraite; le colonel Kearney lui succède

Le 9 décembre, le colonel B. P. Kearney, âgé de 51 ans, a été promu brigadier et nommé Directeur général des Services dentaires des Forces canadiennes, dont le quartier général est à Ottawa.

Il est actuellement l'adjoint du Directeur général des Services dentaires et succèdera au brigadier K. M. Baird, âgé de 54 ans, qui prendra sa retraite ce mois-ci.

Dentiste diplômé de l'Université de Toronto en 1936, le brigadier Kearney est entré dans le corps dentaire en 1940. Il a été officier dentaire dans plusieurs unités de l'Armée canadienne en Grande-Bretagne et dans le nord-ouest de l'Europe pendant la deuxième guerre mondiale.

Après la guerre, il fut nommé successivement aux quartiers généraux de White Horse au début des années 50, à l'Ecole du Corps dentaire royal canadien, puis à Ottawa.

Le brigadier Kearney a commandé la Compagnie dentaire no 25 en Corée, en 1953-54, puis il devint premier spécialiste de la Compagnie dentaire no 13, à Trenton, Ontario. Il prit le commandement de l'Ecole du Corps dentaire du Camp Borden, en Ontario, en 1957, puis fut nommé en '61 chef du corps dentaire de la région de l'Ouest à Edmonton, où il commandait également la Compagnie dentaire no 11.

Il devint premier conseiller dentaire à Ottawa en juillet 1965, avant d'être nommé Directeur général adjoint cette année-là.

Promotion du lieutenant-colonel Turner

Le quartier général des Forces armées canadiennes a annoncé la promotion du lieutenant-colonel J. W. Turner au grade de colonel.

Né à Niagara Falls, en Ontario, le colonel Turner reçut son diplôme de dentiste de l'Université de Toronto en 1945, année où il s'engagea dans le Corps dentaire royal canadien. Il a servi successivement en Europe et à diverses bases au Canada. Il a été instructeur en chef à

l'Ecole du CDRC, à la base des Forces canadiennes de Borden. Le colonel Turner est actuellement conseiller à la Division des services dentaires du quartier général des Forces canadiennes, à Ottawa.

Promotion à l'Ecole du CDRC

Le quartier général des Forces armées canadiennes annonce la promotion du major P. S. Sills au grade de lieutenant-colonel. Le lieutenant-colonel Sills dirige actuellement le département de prothèse de l'Ecole du CDRC.

Le major Durand prend sa retraite

Le major J. Durand, de Montréal, vient de quitter le Corps dentaire royal canadien après 23 ans de service. Le major Durand est entré au Corps en 1942, il a servi dans la marine, à bord du HMCS Magnificent, et en Europe avec la Brigade canadienne. Il a accepté un poste au service de santé de la ville de Montréal.

Economie

Le CCDPQ réaffirme son droit de négocier l'assurance dentaire du Québec

Le Collège des chirurgiens-dentistes de la province de Québec a réaffirmé, sur la recommandation de ses conseillers juridiques, son droit de parler au nom des dentistes du Québec sur les questions relatives à l'assurance dentaire. Ce geste est une réaction à l'adresse de l'Association syndicale professionnelle, organisme fondé l'année dernière au Québec (cf. Journal de novembre 1966 p. 676).

Le Collège, assuré de la prééminence d'une loi particulière (Loi dentaire du Québec, autorisant la création du CCDPQ) sur une loi générale (Loi sur les syndicats professionnels autorisant la création de l'Association syndicale professionnelle), ainsi que d'une juridiction complète sur tous les aspects de la profession dentaire,

a adopté, le 7 décembre 1966, la résolution suivante:

"Que le Bureau provincial de chirurgie dentaire agisse au nom de la profession pour prendre toutes les décisions nécessaires et pour conclure toutes les ententes les plus appropriées dans le cadre de tout projet d'assurance santé dentaire ou de tout autre plan de sécurité sociale affectant les chirurgiens dentistes . . ."

L'Association de l'Alberta enquêtera sur l'emploi des auxiliaires

L'Association dentaire de l'Alberta a décidé de procéder à une enquête sur la façon dont les auxiliaires sont employées dans les cabinets dentaires. Cette décision a été prise à la demande du comité de planification qui voudrait que le bureau de l'ADA "donne aux dentistes des instructions . . . sur les aspects légaux et éthiques de l'emploi du personnel auxiliaire."

Le comité recommande que l'Association dentaire de l'Alberta

—établissee un comité des services des auxiliaires;

—analyse les diverses catégories d'emploi des auxiliaires;

—et "définisse d'une façon méthodique, concise et précise les limites légales et éthiques des fonctions des auxiliaires . . ."

Le comité affirme que l'absence de réglementation ne peut que conduire à une confusion totale, grâce à laquelle une catégorie d'auxiliaires peut empiéter sur les droits d'une autre, comme on peut déjà l'observer.

La Saskatchewan prépare une nouvelle échelle d'honoraires

Le Conseil du Collège des chirurgiens-dentistes de Saskatchewan a chargé un comité spécial de préparer une nouvelle échelle d'honoraires selon la méthode de la valeur relative de l'ADC. Un premier rapport devrait être prêt pour la réunion de printemps du Collège, et la nouvelle échelle devrait être soumise au Conseil lors de la réunion d'automne 1967.

Nouveau Conseil de l'ADA pour l'assurance

L'American Dental Association a créé un nouveau Conseil des programmes d'assurance dentaire. L'administration et le financement des régimes collectifs d'assurance dentaire, qui dépendaient auparavant du Conseil de l'hygiène dentaire, ont été confiés au nouveau conseil.

La N.Y. Service Corporation rembourse les dentistes

La New York Dental Service Corporation a commencé à verser aux dentistes qui en font partie 50 pour cent des honoraires qu'ils n'avaient pas touchés en 1965, alors que la somme des réclamations dépassait le montant des primes perçues. La NYDSC a été la première à demander aux dentistes d'accepter des honoraires variables. Depuis le 1er mai 1965, les dentistes recevaient 70 pour cent de leurs honoraires.

L'inspecteur général des assurances de l'Etat a approuvé ce remboursement partiel qui a été rendu possible par l'amélioration de la situation financière de la corporation. Celle-ci pense être en mesure de poursuivre ses remboursements tous les six mois environ.

Recherches

Nouveau Conseil de l'ADA pour les matériaux dentaires

L'American Dental Association a créé un nouveau Conseil des matériaux et appareils dentaires. La standardisation et l'approbation des matériaux, qui dépendaient du Conseil de la recherche dentaire de l'ADA, sont confiées au nouveau conseil. Sa tâche consistera principalement à évaluer la sécurité et l'efficacité des matériaux et des appareils offerts au public et aux dentistes des Etats-Unis. Le conseil sera chargé d'encourager la mise au point et le perfectionnement des matériaux et appareils utilisés en dentisterie ou en hygiène dentaire publique. Le con-

seil préparera également les futures éditions du *Guide to Dental Materials*, une publication de l'ADA.

Sucre = carie

L'American Dental Association affirme une fois de plus qu'il y a une relation de cause à effet entre le sucre et la carie dentaire. L'ADA dément les opinions exprimées dans une publication de l'US National Confectioners Association selon laquelle les porte-parole des dentistes "deviennent nettement moins intransigeants sur l'interdiction du sucre candi et d'autres bonbons du régime des jeunes enfants." L'ADA conseille à l'association des confiseurs d'effectuer des recherches afin de diminuer les propriétés cariogènes du sucre candi.

Fluoration

La fluoration est adoptée à London et à Hamilton, rejetée à Kingston

A l'occasion des élections municipales de décembre, plusieurs villes de l'Ontario ont été consultées par référendum sur la fluoration.

Les électeurs de London qui, il y a quelques années, avaient rejeté la fluoration, ont décidé de l'adopter. Il en fut de même à Hamilton.

A Kingston, dont l'eau est fluorée depuis mai dernier, et à Orillia, qui possède déjà l'équipement nécessaire, les électeurs ont refusé la fluoration.

Toujours en Ontario, la fluoration a été rejetée à Hanover et adoptée à Smiths Falls.

Le conseil municipal de Waterloo a ordonné le 7 novembre à la Commission des services publics d'installer la fluoration.

Le ministre britannique de la Santé soutient la fluoration

En réponse à une interpellation sur les moyens d'administrer le fluor autrement que par la fluoration de l'eau, le ministre de la Santé a déclaré au Parlement britannique qu'à sa connaissance, "on n'avait découvert aucune autre méthode présentant les avantages de la fluoration des services d'eau, laquelle, à la dose approuvée, est simple, efficace et dépourvue de toute nocivité."

En Afrique du Sud, une commission d'enquête demande la fluoration

Une commission d'enquête a recommandé au gouvernement sud-africain la fluoration des services d'eau afin de combattre la carie dentaire. Le ministre de la Santé, M. A. Hertzog, aurait fait une déclaration dans ce sens à la fin de l'année 1966.

La commission, qui comptait huit membres, a recommandé au gouvernement d'accorder aux autorités locales le pouvoir de fluorer leurs services d'eau et de leur apporter son aide pour réduire la teneur en fluor de l'eau, là où elle est trop forte.

Aux E.-U., 7 personnes sur 10 sont en faveur de la fluoration

Un sondage effectué pour le US Public Health Service révèle que 71 pour cent de la population adulte des Etats-Unis est en principe favorable à la fluoration. Quatorze pour cent seulement des personnes interrogées s'y opposent et 15 pour cent n'ont pas d'opinion.

La proportion de ceux qui croient

qu'une campagne pour la fluoration serait couronnée de succès dans leur municipalité est de 41 pour cent. Trois personnes sur 10 pensent que ce serait un échec et trois sur 10 ne peuvent se prononcer.

Un porte-parole du Public Health Service a déclaré que les résultats de l'enquête faisaient ressortir la nécessité de mieux organiser la défense de la fluoration à l'échelon local et la nécessité de mieux informer le public. Il est possible, a-t-il dit, d'élaborer un programme de mesures permettant de neutraliser les violentes critiques d'une minorité qui n'accepte pas la fluoration.

Hygiène publique

Ottawa consacre \$1.7 millions à la recherche et à l'hygiène publique

Ottawa dépensera cette année \$1.7 millions pour améliorer l'hygiène dentaire de tous les Canadiens. Les sommes versées conformément au programme fédéral de subventions pour l'hygiène de 1966-67, seront réparties entre les 10 provinces de la façon suivante: Terre-Neuve \$165,128, Ile du Prince-Edouard \$34,641, Nouvelle-Ecosse \$150,595, Nouveau-Brunswick \$41,569, Québec \$631,000, Ontario \$224,918, Manitoba \$89,433, Saskatchewan \$86,709, Alberta \$137,290, Colombie britannique \$179,748.

Ces crédits seront consacrés en majeure partie aux programmes d'hygiène dentaire (\$1,470,976). \$137,768 iront à la formation du personnel et \$132,290 seront réservés à la recherche.

Orthodontics: Principles and Practice

T. M. Graber. Ed. 2. Philadelphia and London, W. B. Saunders, 1966. (Available from McAinsh & Co. Limited, Toronto) 922 p. Illus. \$19.45

The second edition of Graber's book, intended for dental students and general practitioners, contains 18 chapters. The 128 pages of the first three chapters recapitulate our present knowledge about growth and development, the physiology of the stomatognathic system, and occlusion. Chapters 5-7 are devoted to incidence, recognition and aetiology of malocclusion. The author classifies aetiological factors into two groups: extrinsic or general factors that operate on the dentition from without, and intrinsic or local factors that are intimately associated with the teeth. Despite the drawbacks to this approach, I support the author's view that this is the easiest classification for students to use. The system works well provided one remains constantly aware of the interdependence of extrinsic and intrinsic factors.

The next three chapters deal with diagnostic procedures, unfavourable sequelae of malocclusion and biomechanical principles of orthodontic tooth movement. Orthodontists will especially appreciate the chapter on tooth movement because it consolidates information not heretofore available in one place.

Chapters 11-18 are devoted to therapy. The subject matter includes orthodontic appliances and treatment philosophy, dental care during orthodontic therapy, preventive and interceptive orthodontics, serial extraction, limited corrective orthodontics and rehabilitation procedures. The philosophy and the clinical application of all currently used appliances are clearly described. The author expresses a note of caution regarding serial extraction; he warns that this form of treatment should only be instigated by the orthodontic specialist who is the only person qualified to make such a decision. The disadvantages of serial extraction overshadow its advantages in my view. Moreover, this form of treatment can actually be harmful. Serial extraction sometimes produces good results when used by an expert orthodontist, but it is far beyond the scope of the general practitioner.

A unique addition to the many references cited in this book is the inclusion in the appendix of a supplemental reading list.

Dr. Graber is a fine teacher. His book is scientifically valid. The information which it contains is presented in a clear manner. The photographs and line drawings are excellent. The editing and printing are of high calibre. I recommend this book, not only to general practitioners, but also to orthodontists.

Paul Geoffrion

The Science of Nutrition and its Application in Clinical Dentistry

A. E. Nizel. Ed. 2. Philadelphia and London, W. B. Saunders, 1966. (Available from McAinsh & Co. Limited, Toronto) 476 p. Illus. \$17.30

This is a book designed to meet the needs of an era in which prevention and control of dental disease will prevail. It is divided into five general subject areas: the nutrients, food, clinical nutrition, nutrition and oral biology, and applied nutrition in dental practice.

The basic science portion is written by several experts in the disciplines of biochemistry, bacteriology, nutrition, medicine and oral biology. The section on applied nutrition is described by clinicians and nutritionists. All contributors direct their discussion to oral problems, a unique feature in a nutrition text. For student and dental practitioner this text translates basic science knowledge into sound, workable methods of nutrition counselling and patient care. The general practitioner will be interested particularly in the chapters on the nutritional management of patients with acute infections, surgical problems, periodontic disease, high caries susceptibility and the handicaps of old age.

The book is comprehensive, well written and contains a wealth of illustrations and tables. I recommend it highly for all dentists who are interested in the preventive aspects of dental care and as a textbook for students.

A. M. Hunt

Updating the tale of the sorcerer's apprentice

The incorporation in the federal government's medicare legislation of an amendment that permits the inclusion of oral surgery services under federally approved provincial health insurance schemes is welcome news for the public and the profession. By this action, the Minister of National Health and Welfare has demonstrated a commendable willingness to yield in the face of reasonable persuasion. But the wording of the amendment raises apprehension on another score. It states that:

"In the application of this Act to a plan established by an Act of the legislature of a province, any health services of a kind prescribed by the Minister to be required health services rendered by a person lawfully entitled to render such services in the place where they are so rendered shall, under such terms and conditions as may be specified by the Governor-in-Council and if the provincial law so provides, be deemed to be services rendered by a medical practitioner that are medically required."

In effect, this permits the federal cabinet to authorize federal medicare contributions to any and all medically required services that may be covered under a provincial insurance scheme. Subject to the interpretation of 'required' services, it opens the door to potential insurance of a full range of dental services.

It is true that Mr. MacEachen has identified oral surgery as being the kind of service that would receive his approbation under the act. But is this good enough? Will Mr. MacEachen's opinion be the same one or two years hence? Or will some future incumbent of the health portfolio take a different stance, labelling all dental services as 'required' and, therefore, insurable services?

The danger in all this is that provinces, tempted by the lure of political kudos, may be moved to launch comprehensive dental insurance schemes and press Ottawa to share the cost without first securing the human base upon which such an edifice must rest. It brings to mind Goethe's famous tale about the legendary sorcerer's apprentice who unleashed but could not contain a powerful magic spell and was very nearly overwhelmed by the results.

As Others See It

Auxiliaries, manpower and decision

The federal health legislation of the past year, the rapid development of programs to carry out the provisions of these laws, and the almost certainty that these health benefits will be extended, surely must have alerted dentists to

the tremendous obligations the profession will have to assume. And perhaps sooner than we realize.

Funds are available now for comprehensive care programs for those who receive public assistance, for those under 21 whose families, although not receiving public assistance, cannot afford the costs of their children's health care, for members of dependent families who cannot pay for health care, for the blind, the disabled and the elderly. In addition, a national program of dental care for children is being developed. Then, too, there is the likelihood that the health programs will be broadened to cover all of the needy regardless of age.

Estimates of the number of recipients of this dental care are risky and varied; some indicate that eventually one-third to one-half of the population will be involved. This in a country of 179 plus millions. Obviously manpower must be considered. The [US] Public Health Service, looking to 1975, estimates that 120,500 dentists will be needed, and that there will be 95,000 dentists available. One approach to a solution, also obvious, is the expansion of the duties of auxiliaries.

The American Dental Association, in 1960, encouraged experimentation and research in the training and utilization of dental hygienists and dental assistants. Four training programs are underway: at the Naval Training Centre, Great Lakes (this has been concluded); by the Division of Indian Health of the Public Health Service; at the Experimental Centre of the Public Health Centre, Louisville; and at the University of Alabama School of Dentistry.

Reports from these projects indicate that dental auxiliaries can be trained to perform a variety of procedures under the direction and supervision of the dentist, that the quality of treatment is comparable to that given in conventional practice, and that the productivity of the dentist can be increased greatly by the use of such personnel.

This experimentation should continue, with the profession thoughtfully evaluating the results in relation to the mounting responsibilities of providing dental care to the public. The direction of the training will be of concern to both practitioner and teacher. The extent of delegation of duties to well trained, efficiently organized, and properly supervised auxiliaries will have to be determined precisely. But this can come later.

First and basic is the position and philosophy of dentists. Do we wish to delegate certain procedures to auxiliary persons that hitherto only we had been legally permitted to do? That is the pivotal decision that we have to make. We can train them, we can determine what they may do, and we can establish that by law. Do we want to?

We are approaching the moment of truth. We should face it directly after searching intellectual self-probing; after sincere, rational, and unemotional discussion with our colleagues; and after a realistic appraisal of our professional obligations to the people we serve. It is a profound decision, but it is ours—now.

T. S. McBride

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Emergency Health Services

To the Editor:

I have read with interest the symposium on Emergency Health Services matters published in your issue of January 1967. I have also noted with satisfaction the favourable editorial comments. Please allow me to express the appreciation of my Minister, of myself and of Emergency Health Services Division of this Department for your support of emergency health planning in Canada. I know that in the past you have given similar support and that by this means you have provided a useful body of reference for members of the Canadian health professions.

J. N. Crawford, MD,
Deputy Minister of National Health

Provisional Program for FDI Paris World Congress

To the Editor:

With less than three months to go until the Congress (July 7-13), we have decided to send out the provisional program to all colleagues whose enrolment form has been received at Congress headquarters. The program will only be sent to members whose enrolment form has been received duly completed and free of mistakes. Much to our regret, quite a number of forms were wrongly filled in and this entails considerable correspondence with the senders before we can confirm their enrolment.

Although we are only sending a provisional program, it is extremely detailed so as to give participants all possible advance information about the social events they may wish to attend and the extensive scientific program which has been planned.

The provisional program also includes information and advice which Canadian participants will find useful on arrival in Paris and before they collect their Congress folders at the CNIT Building. These folders will be issued on presentation of the participant's numbered Congress membership card. These cards, which are being mailed with the provisional program, will be the only means of access to the various floors of the CNIT Building.

Congress folders may be collected from Friday July 7. Several official ceremonies and social events will also be held on July 7. Tickets for these events will be sent with the provisional program to participants who have applied for them.

Unfortunately, there will not be room for all who have applied for invitations to the opening ceremony on Friday morning July 7 at the Palais de Chaillot. We have therefore dealt with the requests in the order in which they have reached us. Participants who wish to attend this ceremony are asked to return the detachable counterfoil of their invitation. Only those who return the counterfoil will be admitted.

Invitations to the official opening of the various exhibitions to be held after lunch on Friday July 7 at the CNIT Building will also accompany the provisional program.

Additionally, two social events are scheduled for Friday July 7 — visits to two factories where Christian Dior perfumes and Oreal beauty preparations are manufactured. Both are limited to ladies only (either Congress participants or associate members) and both have been fully booked for some time. Tickets will be sent to the lucky ladies. Both these visits will be repeated on Monday July 10.

Application forms for three further social events — (1) visits offered by the Organizing Committee, (2) visits to museums (for ladies only), (3) visits to department stores (again for ladies only) — are included with the provisional program and participants are asked to complete and return them without delay as attendance will be limited and applications will be dealt with in the order of their receipt.

Application forms for the table clinic program are also included with the provisional program. Priority will be accorded to applications sent in now; therefore early registration is advisable.

Books of tickets for the commuter trains connecting the Gare Saint-Lazare with the CNIT Building will be sent with the provisional program to those who have applied for them when enrolling for the Congress. Additional tickets may be obtained at the Gare Saint-Lazare and at the Défense Station adjoining the CNIT Building.

In summary, 10 documents will be sent with the provisional program. This will contain only some of the tickets, invitations and documents which the participant has requested. The remaining documents will be issued with the final program in the Congress folder. We regret that it may not be possible to accommodate all participants — especially late applicants — at all the events they would like to attend. Nevertheless, we will do our utmost to please everyone and ensure that none who have responded to our appeal to come to Paris July 1967 will have any regrets.

Jacques Dubois,
*Assistant Secretary General,
XIVth World Dental Congress.*

Employment of auxiliary clinical personnel in the Royal Canadian Dental Corps

K. M. Baird, DDS,* Ottawa, and G. R. Covey, DDS† and
D. H. Protheroe, DDS, MPH,‡ Camp Borden, Ontario

As a continuation of previous investigations on auxiliary personnel in the Royal Canadian Dental Corps, a further study was carried out to determine how such personnel could support one dental officer in the most productive and efficient way. The methods employed and the effects on clinical practice in the Corps are described. The study includes an investigation of the productivity of the dental health team led by a single dentist and supported by various combinations of clinical (dental) assistants, clinical supervisors (dental therapists), clinical technicians (dental hygienists), clerical assistants, equipment and accommodation. One clinical supervisor and two clinical assistants plus two fully equipped and one partially equipped treatment bays emerged as the ideal combination in support of a single dental officer. Resultant value of the increased productivity greatly exceeded the cost of salaries paid these auxiliaries. The Corps has devised a new trade structure to facilitate the training of the respective clinical auxiliaries. These auxiliaries augment the treatment capability but do not substitute for the services of the qualified dentist.

Pour faire suite à des études antérieures faites sur l'emploi de personnel auxiliaire dans le Corps dentaire royal canadien, on a entrepris une nouvelle enquête de façon à déterminer quel est le nombre optimum de personnel auxiliaire qui peut assister un dentiste. Les auteurs décrivent les différentes méthodes opératoires employées et leurs effets sur le rendement clinique des officiers du Corps dentaire. On a étudié la productivité d'une équipe à la tête de laquelle se trouvait un seul dentiste, assisté dans ses fonctions par différentes combinaisons d'assistants dentaires, de cliniciens, de techniciens, d'hygiénistes dentaires et de commis, tout en étudiant aussi l'effet des variations d'équipement et de locaux. Il semble qu'un seul dentiste obtienne son plus haut niveau de productivité lorsqu'il est secondé dans ses fonctions par deux assistants cliniques, et lorsqu'il travaille dans trois cliniques, deux bénéficiant du maximum d'appareillage, alors que la troisième se contente du minimum. La valeur de l'augmentation de la productivité dépasse de beaucoup le coût des salaires payés aux auxiliaires. Le Corps dentaire a établi de nouvelles structures de façon à faciliter l'entraînement

des auxiliaires cliniques. Ces auxiliaires augmentent le rendement du dentiste, mais ne rendent pas de services professionnels à sa place.

A previous study^{1,2} conducted by the Royal Canadian Dental Corps from 1960 to 1963 provided sufficient information to warrant certain conclusions regarding auxiliary dental personnel in the Armed Forces. The most pertinent of these were that clinical technicians (dental hygienists) could be trained to undertake additional responsibilities and that they could then be employed effectively in the existing clinical organization of the RCDC. It was also concluded that further studies were necessary in connection with the composition of the dental health team and the equipment and accommodation required to support it.

This earlier study, together with our growing experience with auxiliary personnel, resulted in a new RCDC trade structure and a concomitant training program which commenced in the autumn of 1966. Briefly, this structure encompasses in the first instance a basic dental assistant course for all personnel upon enrolment into the Corps. This permits assessment of the candidates and their subsequent guidance into one of the three main trade channels: clinical, laboratory or equipment maintenance. The clinical channel is of primary interest in these studies. It consists of three further levels, each attained by a trade test or a course at the RCDC School with a specified minimum period of on-the-job training intervening. At the first level, the candidate becomes a fully trained clinical assistant qualified to assist the dental officer in all phases of treatment at the chair. If the candidate is selected for further training and attains the next level, he becomes a clinical technician or the equivalent of a civilian dental hygienist. After further selection and qualification he may reach the top level as clinical supervisor (formerly designated as technical dental therapist). Advanced clinical auxiliaries attend a minimum of three courses at the RCDC School with a total duration of 51 weeks. Augmented by on-the-job train-

ing between courses, the combined training experience occupies at least seven years. These auxiliaries are carefully selected, well motivated and highly trained individuals who have proved a credit to the Corps and to the profession. Establishment positions in the two senior clinical trades have been increased to include 32 clinical technicians and 13 clinical supervisors. Further increases will likely be sought when these positions are filled.

The main duties of the clinical technician are in preventive dentistry and include oral prophylaxis, dental radiography, home-care counselling and topical application of anticariogenic agents.

The clinical supervisor has no civilian equivalent. He is a clinical technician who has been trained to perform:

1. Restorative dentistry — rubber dam application, matrix application, placement of filling material, carving or finishing the restoration, polishing;
2. Prosthetic dentistry — preliminary impressions;
3. Preventive dentistry — impressions for study casts, mouth protectors;
4. Periodontics — placement and removal of periodontic packs;
5. Oral surgery — removal of sutures, postoperative irrigation.

Introduction of the clinical supervisor (therapist) and increased numbers of clinical technicians (hygienists) produced some problems of accommodation and equipment. After the clinical supervisors were trained and additional operating space and equipment were provided, it became apparent that a different clinical arrangement would be required if they were to be employed to the best advantage. We also had to learn how each of the clinical auxiliaries would fit into the dental health team and what organization would be necessary to accommodate them.

Accordingly, we initiated a further study to determine the personnel, accommodation and equipment required to support one dental officer in the most productive and efficient way. The study commenced in February 1964 and terminated in the fall of 1965. This paper outlines the methods employed and the conclusions reached and discusses the effects upon clinical practice in the RCDC.

METHOD

The study was conducted in six stages of 40 duty days each, except stage six which had to be terminated after 35 duty days. During each stage detailed records of productivity were maintained and work analyses performed so that valid comparisons could be made between the study stages. Additional productivity records were compiled for several months prior to the study to provide a picture of the dental officer's usual performance. No work analysis was done during this period because this might have prompted the officer to put forth extra effort and given a false indication of his normal productivity. During the pre-study period, the dental officer had one treatment bay and one dental assistant.

In stage one, the dental team comprised one dental officer and one dental assistant. Two treatment bays were provided but only one was fully equipped. The aim was to establish a base of dental productivity with which the other stages could be compared.

A second dental assistant was added in stage two. Accommodation and equipment remained unaltered. The aim was to determine the effect of the second dental assistant upon productivity.

In stage three, the second treatment bay was fully equipped so that any dental procedure could be performed in either bay. The aim, of course, was to determine the effect of this on team productivity.

The clinical supervisor was introduced in stage four along with a third suitably equipped treatment bay. The aim was to determine the effect of the clinical supervisor upon productivity.

A third dental assistant was added in stage five. Equipment and accommodation remained unchanged. We felt that the dental team—which in stage four had grown to one dental officer, two dental assistants and a clinical supervisor — might require an assistant to handle clerical duties and control patient flow. In stage five, therefore, we tried to determine the effect that this added clerical assistant would have upon team productivity.

In stage six, a clinical technician was added along with a suitably equipped treatment bay. We tried to determine the effect this would have on team productivity.

Personnel, accommodation and equipment details of the dental team during each of the stages are shown in Table 1.

Five criteria were used to analyse productivity: operations, time points, rela-

TABLE 1 Team composition during successive stages.

Stage	Personnel	Accommodation and equipment
Pre-study	1 dental officer 1 dental assistant	1 treatment bay
1	1 dental officer 1 dental assistant	2 treatment bays (1 fully equipped)
2	1 dental officer 2 dental assistants	2 treatment bays (1 fully equipped)
3	1 dental officer 2 dental assistants	2 fully equipped treatment bays
4	1 dental officer 1 clinical supervisor 2 dental assistants	2 fully equipped treatment bays 1 clinical supervisor treatment bay
5	1 dental officer 1 clinical supervisor 2 dental assistants 1 clerical assistant	2 fully equipped treatment bays 1 clinical supervisor treatment bay
6	1 dental officer 1 clinical supervisor 1 clinical technician 2 dental assistants 1 clerical assistant	2 fully equipped treatment bays 1 clinical supervisor treatment bay 1 clinical technician treatment bay

TABLE 2 Dental team productivity analysis.

Method of analysis	Pre-study	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
RVU per duty day	95.2	114.1	134.8	141.8	207.2	191.3	255.8
Time points per duty day	72.6	92.9	104.9	110.1	159.6	151.6	182.0
Operations per duty day	14.0	20.2	22.7	23.4	35.2	32.1	51.2
RVU of restorative dentistry per duty day	47.2	69.1	71.5	73.7	108.4	106.0	108.0
Filled surfaces per duty day	9.5	15.0	15.4	15.4	23.3	25.2	23.8

tive value units, relative value units of restorative dentistry, and filled surfaces. Each of these was calculated in relation to duty days.

A dental operation in this study refers to a completed operation. Every operation counts equally as one point regardless of the difficulty or the length of time involved.

Time points are weighted values for dental operations which are based on the average times required to complete the various dental operations. This is used by the Corps to assess productivity.

Relative value units (RVU),³ like time points, reflect the average time required to complete a given operation. These units also incorporate a responsibility factor which is based on the knowledge, skill, judgement, and risk involved in performing the operation. The relative value of each service is determined by the product of its time and responsibility factors. Relative value units are probably the most accurate means for analysing dental productivity.

Relative value units of restorative dentistry reflect simply the amount of restor-

TABLE 3 Per cent increase in productivity by stage, per duty day.

Method of analysis	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
	Per cent increase over pre-study stage					
RVU per duty day	19.9%	41.6%	48.9%	118.7%	100.9%	168.7%
Time points per duty day	28.0	44.5	51.7	119.8	108.8	150.7
Operations per duty day	44.4	62.1	67.1	151.4	129.3	265.7
RVU of restorative dentistry per duty day	46.4	51.5	56.1	129.7	124.6	128.8
Filled surfaces per duty day	57.9	62.1	62.1	145.3	165.3	121.1
Per cent increase over stage 1						
RVU per duty day		18.1%	24.3%	81.6%	67.7%	124.2%
Time points per duty day		12.9	18.5	71.7	63.2	95.9
Operations per duty day		12.4	16.3	74.3	58.9	154.7
RVU of restorative dentistry per duty day		3.5	6.7	56.9	53.4	56.3
Filled surfaces per duty day		2.7	2.7	55.3	68.0	58.7

ative dentistry performed. This is important since the clinical supervisor makes his greatest contribution to dental productivity in this field. The same reasoning applies to the criterion 'Number of Filled Surfaces.'

RESULTS

Team Productivity. — The productivity analysis is shown in Tables 2 and 3. Table 2 gives productivity per duty day and includes pre-study performance. Table 3 outlines the per cent increases in productivity per duty day. The data presented in these tables represent the major statistical findings in the study.

During the pre-study period, the dental officer performed 95.2 RVU per duty day.

In stage one, the productivity of the team increased to 114.1 RVU per duty day. This increase of 19.9 per cent over the pre-study period must be attributed to the addition of a second treatment bay.

Achievement in stage two, with the addition of a second dental assistant, increased to 134.8 RVU per duty day. This increase of 41.6 per cent over the pre-study performance represents the combined effect of adding one dental assistant and a second treatment bay. The increase over stage one was 18.1 per cent.

When the second treatment bay was fully equipped in stage three, productivity rose to 141.8 RVU per duty day, an increase of 48.9 per cent over the pre-study performance. This represents the combined effect of a second assistant and two fully equipped treatment bays. The increase over stage one, 24.3 per cent, reflects the combined effect of fully equipping the second bay and employing a second assistant. The change from stage two, which shows the effect of equipping the second treatment bay, was 5.2 per cent.

In stage four, the clinical supervisor was added and productivity climbed 207.2 RVU per duty day, an increase of 118.7 per cent over the pre-study period. This, of course, represents the combined effect of the clinical supervisor, a

second dental assistant and two fully equipped treatment bays. The increase between stages one and four was 81.6 per cent. The clinical supervisor alone contributed a 46.1 per cent increase in productivity from stages three to four.

The clerical assistant was added in stage five and productivity decreased to 191.3 RVU per duty day. This decrease from stage four to five amounted to 7.7 per cent.

In stage six the clinical technician was added and productivity again rose to 255.8 RVU per duty day, a 168.7 per cent increase over the pre-study period. This represents the combined effect of a clinical supervisor, a clinical technician, a clerical assistant, a second dental assistant and two fully equipped treatment bays for the dental officer. The increase from stage one to six was 124.2 per cent. The clinical technician alone contributed a 33.7 per cent increase in productivity from stage five to six.

These findings are summarized and compared with the 1963 study^{1,2} in Table 4.

Productivity increased by 168.7 per cent from the pre-study stage (98.2 RVU per duty day) to stage six (255.8 RVU). Productivity increases occurred in every stage except stage five when the clerical assistant was added. This decrease is attributed to the time of year at which this stage was held; it encompassed the summer leave period when demand for treatment was very low. The addition of the clerical assistant did, however, reduce the stress exerted on the dental team and the members functioned more effectively.

The productivity increase (5.2 per cent) which resulted from fully equipping the second treatment bay was less than expected. However, since many dental procedures can be performed in a partially equipped bay, one need not anticipate a large productivity increment from additional equipment. Nevertheless, availability of the fully equipped second bay did make the provision of treatment much easier.

The increases shown in this study were less than for similar team compositions in the 1963 study. The reasons for this phenomenon are not known; it may be due in part to differences in team management

TABLE 4 Summary of productivity changes resulting from additions of personnel, accommodation or equipment and comparison with 1963 study.

Additions to team	Productivity change in this study	Productivity change in 1963 study
Second treatment bay	+19.9%	
Second dental assistant	+18.1%	
Fully equipped second bay	+ 5.2%	
Clinical supervisor	+45.1%	+61.7%
Clerical assistant	— 7.7%	
Clinical technician	+33.7%	
Team consisting of 1 dental officer, 2 dental assistants and two fully equipped bays	+24.3%	+37.4%
Team consisting of 1 dental officer, 1 clinical supervisor, 2 dental assistants and two fully equipped bays	+81.6%	+99.1%
Team consisting of 1 dental officer, 1 clinical supervisor, 1 clinical technician, 1 clerical assistant, 2 dental assistants, 2 fully equipped bays for dental officer, 1 clinical supervisor bay and 1 dental technician clinical bay	+124.2%	

and control of patient flow by the dental officers concerned. In addition, this study was conducted over a much longer period thus reducing the tendency for the team personnel to put forth the extra and sustained effort which may occur in a shorter study.

Dental Officer Work Analysis. — Table 5 shows the work analysis carried out on the dental officer. Notable is the fact that the proportion of his total chairside time remained uniformly high throughout the study, ranging from 77.6 per cent in stage one to 84.9 per cent in stage six.

Apparently the supervisory responsibilities involved in managing additional personnel did not require the dental officer to spend less time at the chairside.

Productivity—Clinical Supervisor. — An analysis of the clinical supervisor's productivity is shown in Table 6. RVU per duty day represents his total productivity. His performance increased from stage four to five but decreased from stage five to six. The decrease in stage six can be explained by the fact that the clinical technician performed all oral prophylaxes and radiography for the team.

TABLE 5 Dental officer work analysis.

Item	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Per cent of total time at chairside	77.6%	82.5%	80.5%	79.1%	79.2%	84.9%
Per cent of total time non-productive	22.8	17.5	19.5	20.9	20.8	15.1
Per cent of chairside time spent on restorative dentistry	70.8	56.5	54.4	54.0	64.8	72.5
Per cent of chairside time spent on oral surgery	17.4	22.4	11.2	11.6	9.1	17.1
Per cent of chairside time spent on prosthodontics	6.6	14.2	15.1	15.2	11.2	8.5
Per cent of chairside time spent on periodontics	0.2	0.7	1.3	0.6	—	0.6

TABLE 6 Clinical supervisor productivity.

Method of analysis	Stage 4	Stage 5	Stage 6
RVU per duty day	77.0	84.9	67.4
RVU of restorative dentistry per duty day	50.5	61.2	59.2
Filled surfaces per duty day	16.3	18.7	17.9

TABLE 7 Clinical technician work analysis.

Per cent of total time spent on behalf of patients	89.1%
Per cent of total time non-productive	10.9
Per cent of patient time spent on oral prophylaxis	74.0
Per cent of patient time spent on radiography	21.9
Per cent of patient time spent on chairside education	4.1

These functions were carried out by the clinical supervisor in stages four and five. His productivity in restorative dentistry also reached its highest level in stage five but declined only slightly in stage six.

Clinical Technician — Work Analysis. — Table 7 depicts the work analysis carried out on the clinical technician. It shows that he was fully employed with 89.1 per cent of his total time spent with or on behalf of patients. He spent 74.0 per cent of his time on oral prophylaxis and 21.9 on radiography.

DISCUSSION

Employment of dental officers and auxiliary personnel in dental operating teams, with proper accommodation and equipment, increases productivity greatly. But the team composition in stage six is not ideal. There is some overlapping of functions when the clinical supervisor and clinical technician are both part of the same team. Both can perform hygienist functions. This limits the range of services that the clinical supervisor performs so that his activities are then mainly restricted to restorative dentistry. In consequence the dental officer has to prepare more work for the clinical supervisor and much of the balance of treatment that many dental officers find desirable is lost. We therefore believe that the clinical supervisor and clinical tech-

nician should not be employed in the same dental team. Rather, the clinical technician should work in support of two or more officer/clinical supervisor teams or be employed where a clinical supervisor is not available.

Certain other important factors such as stress, fatigue and morale do not reflect in productivity statistics. When these are also considered, the most effective team composition and accommodation in a large clinic would be: one dental officer, one clinical supervisor, two dental assistants, two fully equipped treatment bays, and one clinical supervisor treatment bay. When the team works independently, a clerical assistant should be added to relieve the dental officer of some of the duties associated with patient flow and clinic administration.

The dental officer in this study actually experienced some physical symptoms of stress early in stage five. This took the form of 'pseudoarthritis' of the fingers. At that time he had completed approximately 170 duty days of the study. The symptoms disappeared completely following a period of leave and are mentioned only to emphasize that there is a stress factor involved in leading a dental team, at least in a study environment.

The value of the productivity increases considerably exceeded the cost of salaries paid to the auxiliary dental personnel. Employment of the dental team is therefore economically justifiable.

The information gained so far has been

concerned only with the team led by a single dental officer. Further studies should deal with employment of teams in clinics staffed with several dental officers or in clinics of various sizes.

SUMMARY AND CONCLUSIONS

1. All three types of auxiliary clinical personnel (clinical assistant, clinical technician and clinical supervisor) employed in the RCDC have a definite role in the dental health team. They must be assigned on a proper basis if maximum benefit is to accrue from their employment. They must also be given adequate accommodation and equipment.

2. The clinical supervisor and the clinical technician should not be employed in the same team because this restricts the scope of the supervisor. In larger clinics, however, both can be employed to good advantage.

3. The clinical supervisor is an effective and economical alternative to an increased requirement for dental officers. This is especially so at bases where the patient commitment is too great for one dental officer but not sufficient for two or where it includes a large number of young adults and dependent children. In these situations the role of the clinical auxiliary in dental health education is of supplementary benefit.

4. Personnel should not be employed in a highly organized team for protracted periods because of the possible stress involved. Under normal working conditions, however, this factor may not be as prominent as under study conditions.

5. It is difficult to assess all the factors in terms of a cost analysis of RCDC auxiliary clinical personnel. Aside from economy, the principal advantage is that there is an adequate source of eligible personnel and an efficient means of training them. The shortage of dental officers may persist in the foreseeable future but clinical auxiliaries can be maintained at a practical ratio within the resources of the Armed Forces training program and facilities.

6. Our previous findings on the employment of clinical auxiliaries were confirmed. The findings from this study are supported generally by the experience of the Corps with other advanced auxiliaries working in a variety of clinical situations.

7. The clinical supervisor has demonstrated his utility and his continued training and employment in the Corps is assured.

8. Clinical auxiliaries of any type are only a means of augmenting the treatment capability of the dental officer; they are no substitute for the dentist.

*Formerly Director General of Dental Services.

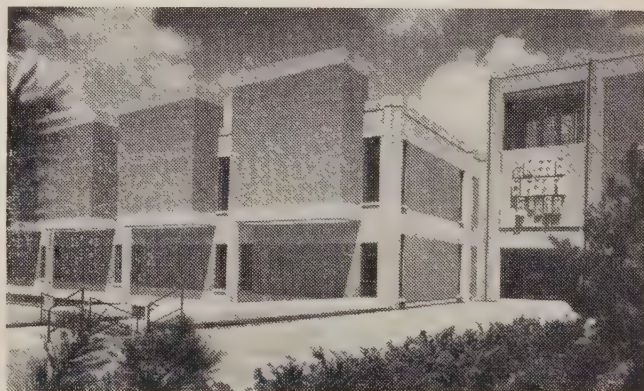
†Commandant, The RCDC School.

‡Chief Instructor, The RCDC School.

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Ottawa 4*

Founders College Residence is the home of many of the students attending Toronto's York University. When visiting the CDA-ODA centennial convention in May, take a trip through the impressive York University campus.

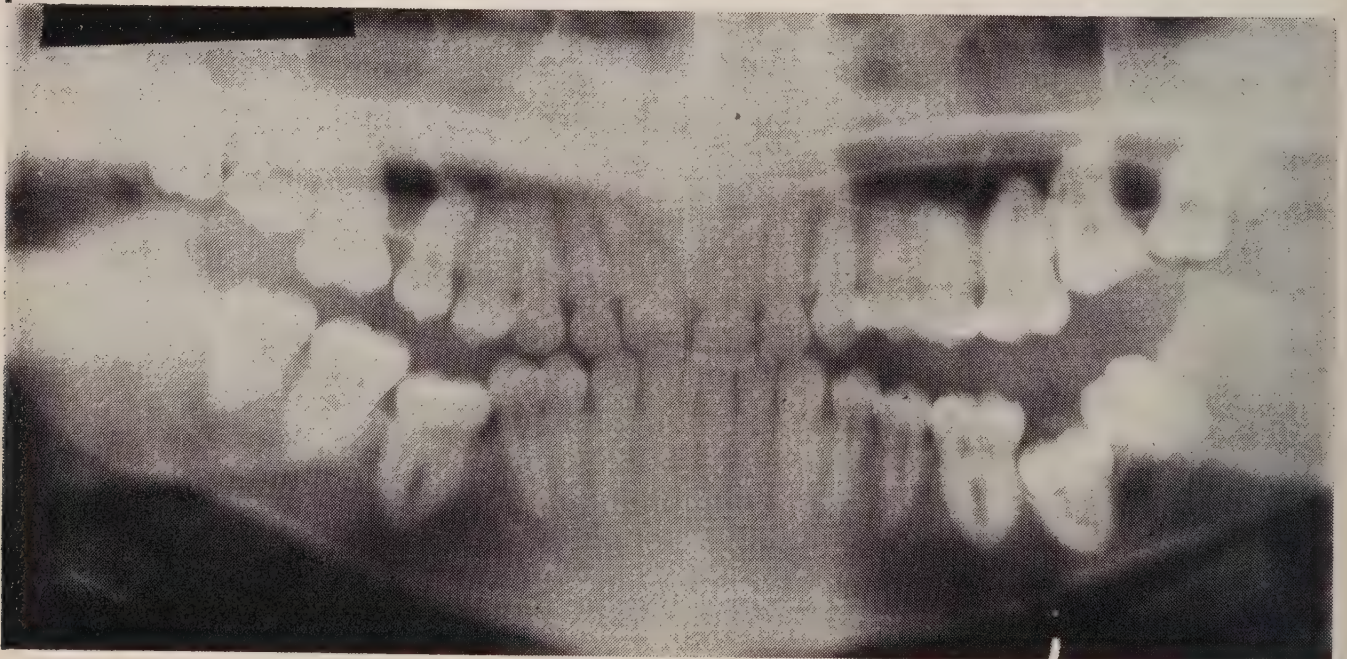


Panoramic Radiography

in the practice of oral surgery

P. T. Smylski, DDS, Toronto, Ontario*

FIGURE 1 Impacted teeth.



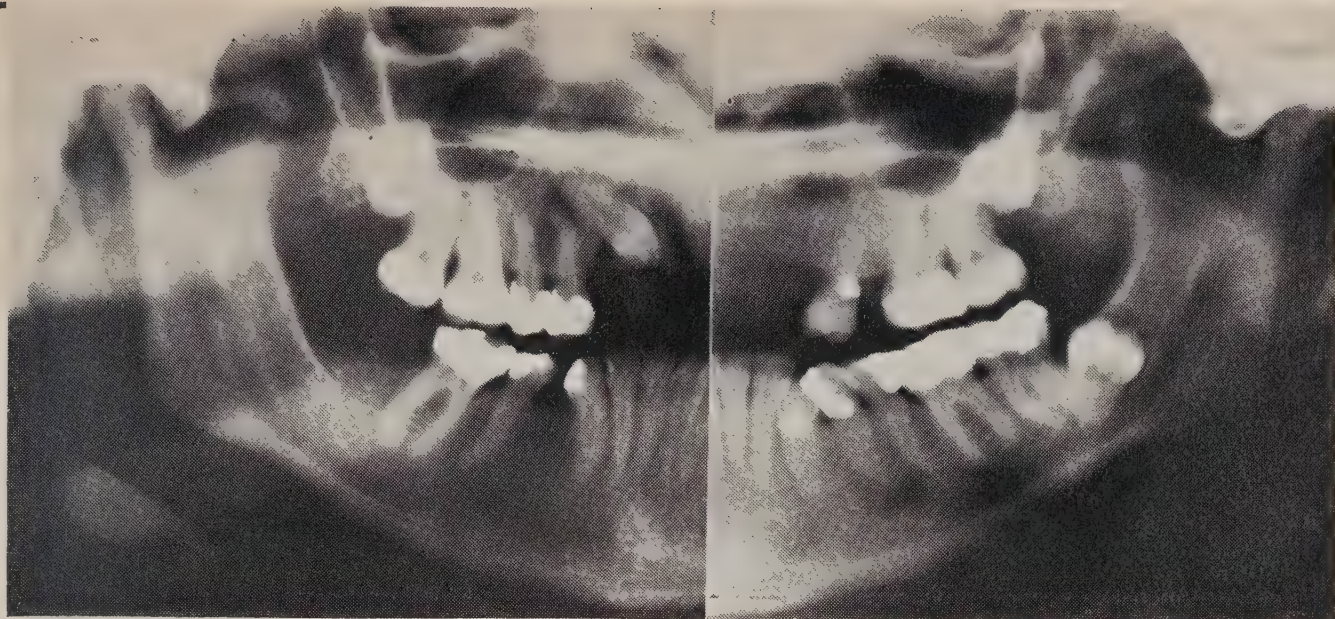
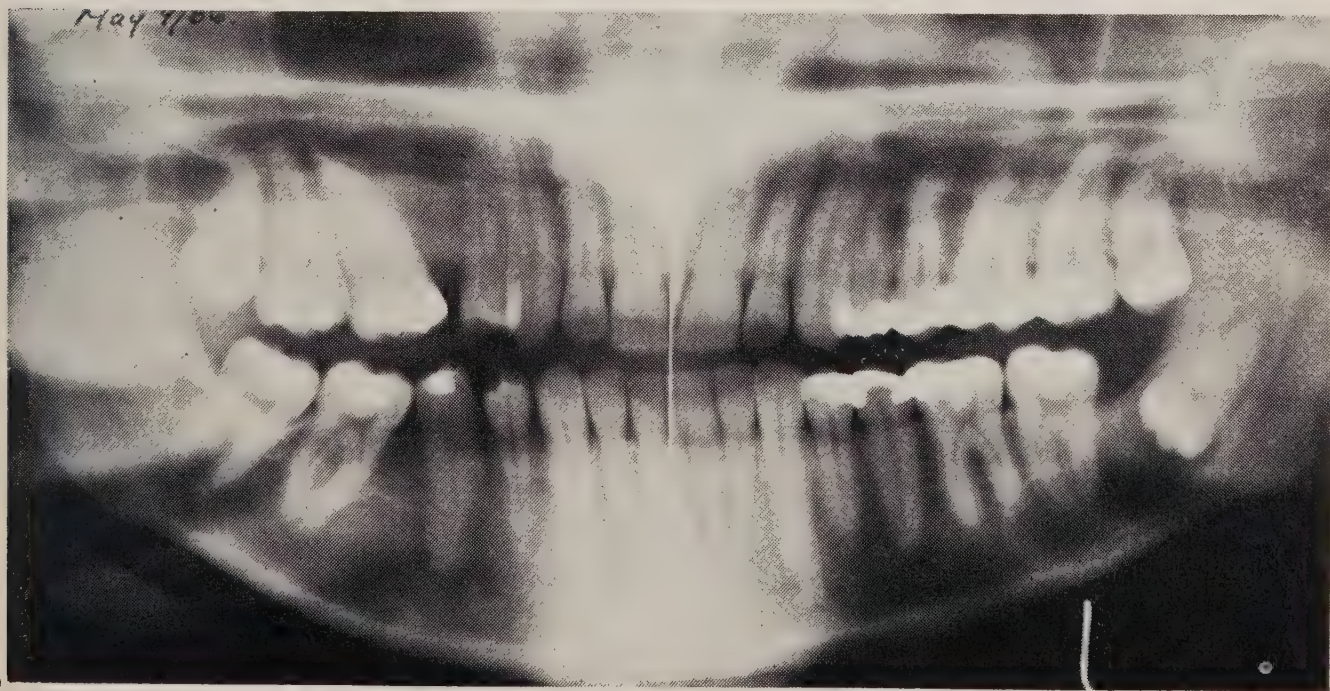


FIGURE 2 Impacted and unerupted teeth.

Panoramic radiography affords a complete view of the jaws and surrounding structures. The presence or absence of malposed teeth, tooth remnants, residual cysts or other pathosis may be confirmed by this technique. The relationship of fragments can be readily established in cases of jaw fracture. Extensive pathological lesions can be outlined in their entirety. Panoramic radiographs can also be used for patient education.

L'examen radiographique panoramique fournit une vue d'ensemble des mâchoires et des structures avoisinantes. Cette technique permet de confirmer la présence ou l'absence de dents en malposition, de racines, de kystes résiduels ou d'autres lésions. Dans les cas de fracture des mâchoires, on voit très bien la position relative des fragments. On peut voir dans leur ensemble les lésions importantes. Les films panoramiques sont aussi utiles pour aider les patients à comprendre les problèmes en cause.

FIGURE 3 Unerupted mandibular third molar and dentigerous cyst.



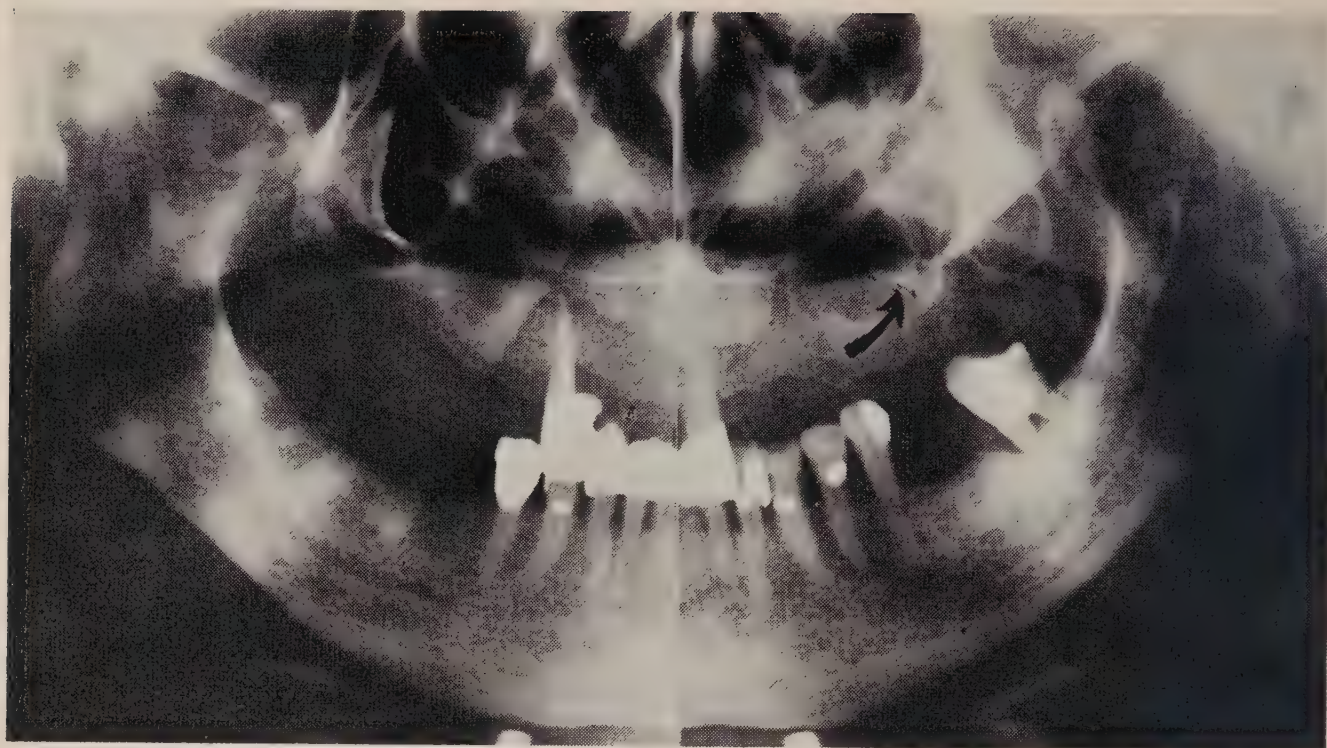


FIGURE 4 Root in the left antrum.

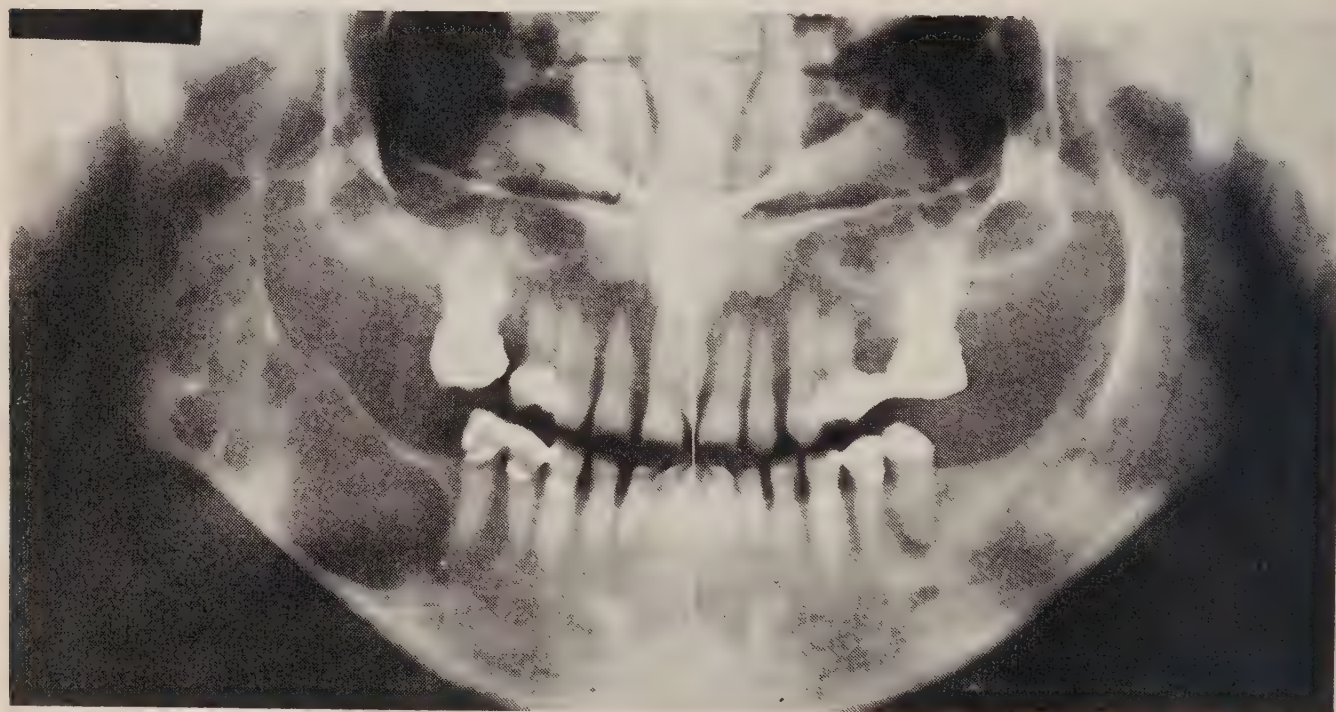


FIGURE 5 Extensive cyst in body and ramus of right side of mandible.

A relatively recent development in radiography is the apparatus which produces a panoramic view of the jaws and adjacent structures. It promises to be a useful additional diagnostic aid in oral surgery. There are several varieties of this machine and these have been amply described.^{1,2} Each is designed slightly differently, but all with the same object in mind; to produce a panoramic view on one continuous sheet of film.

My experience is limited to only one kind of machine, the Panorex. In the short period of a few months the machine has proved to be a very useful adjunct in radiographic investigations prior to surgery. One area of hoped for improvement in the radiograph produced is the elimination of a vertical band of unexposed film down the middle of the film. This does not, however, leave out any structures. Instead, the area of cen-

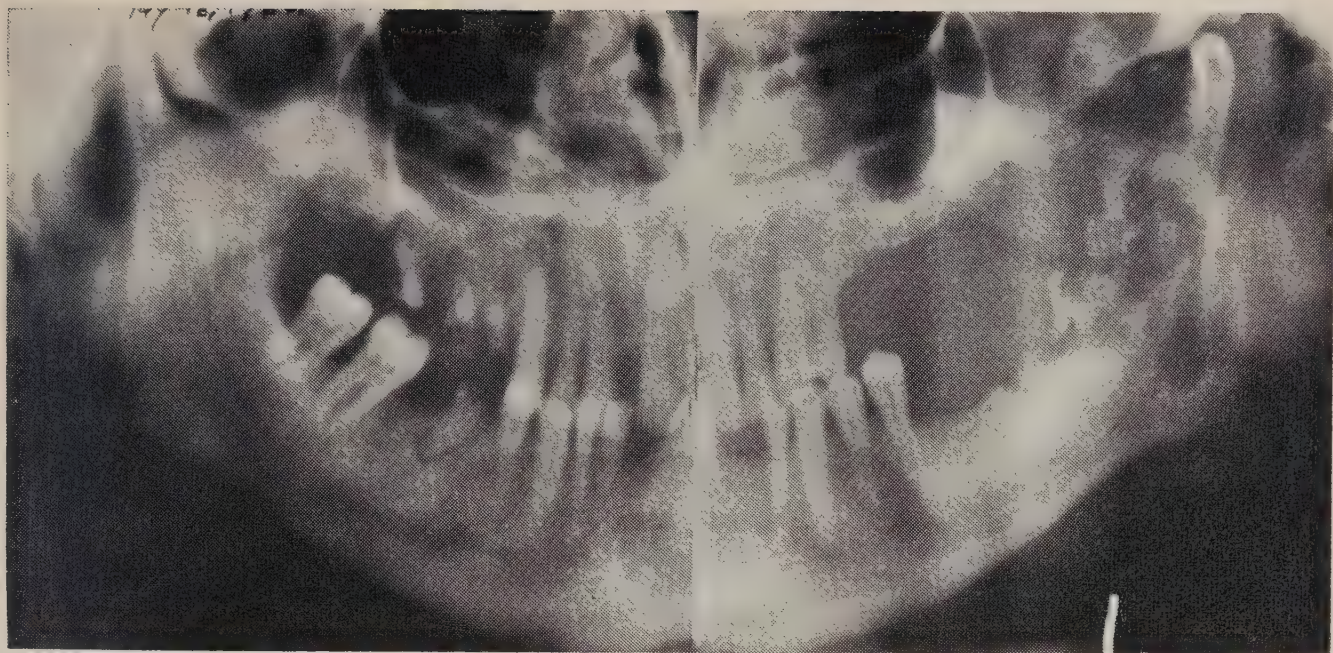
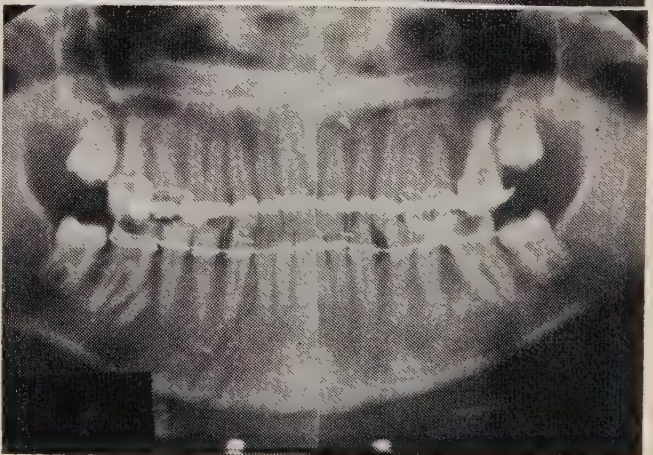
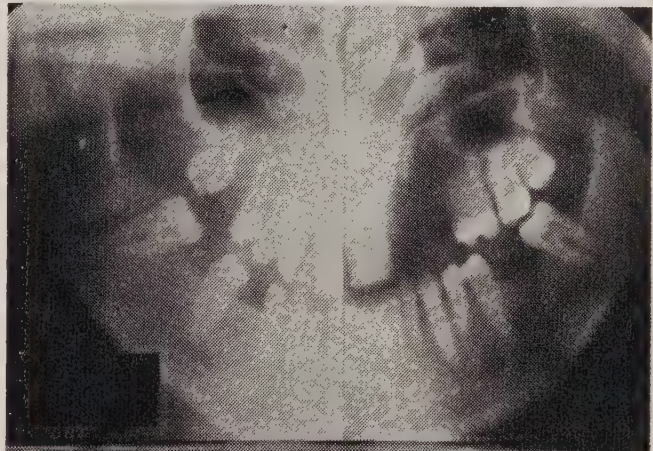


FIGURE 6 Osteomyelitis and pathological fracture of the ascending ramus of the mandible.

FIGURE 7 (right) Open reduction of fractured mandible.



tral incisors is reproduced twice—once on each half of the radiograph. The duplicated portion in the film may be marked and cut out with a paper guillotine and the two halves joined together.

Panoramic radiography permits a complete and thorough survey of the entire mandible, maxilla and surrounding structures. It is easier for the eye to follow from one site to another on the single large radiograph. Varying densities may be readily identified and the abnormal may be more readily differentiated from the normal.

Impacted teeth are always included in their entirety in such a radiograph (Figures 1 and 2). Periapical radiographs of mandibular third molar areas are generally not easy to take and too often parts of the roots are not included in such radiographs. Additional extra-oral lateral oblique views are then necessary to include areas beyond the third molars.

FIGURE 8 (bottom right) Closed reduction of fractured mandible.

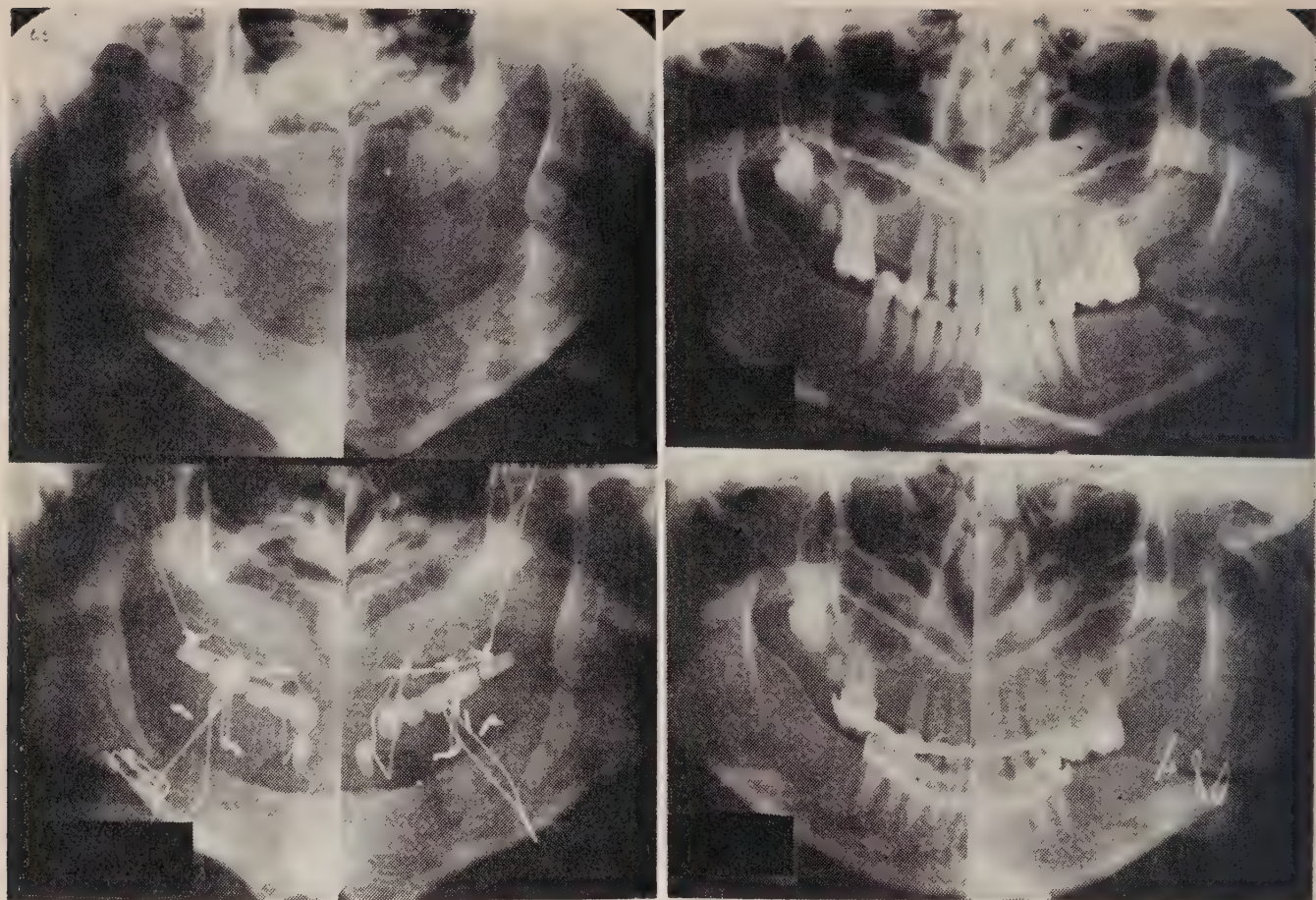


FIGURE 9 Pre- and postoperative views in non-union of mandible.

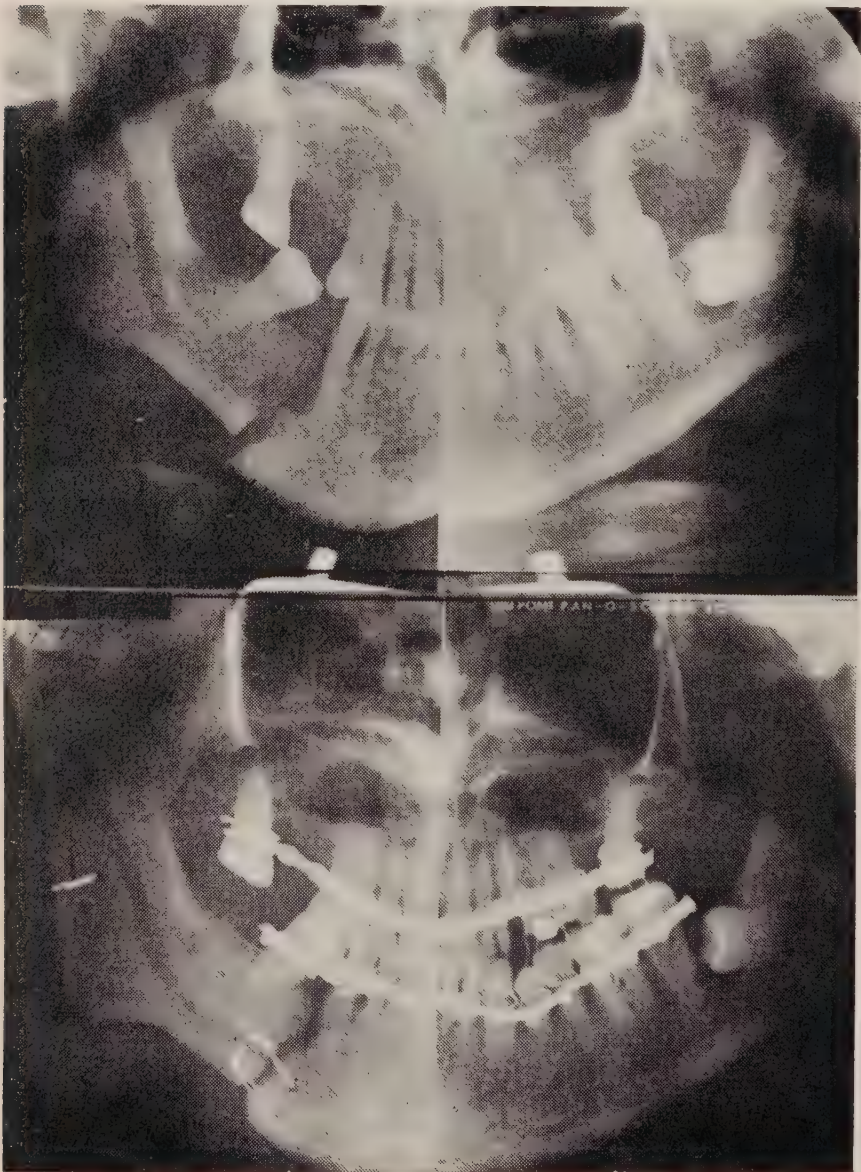


FIGURE 10 Pre- and postoperative views in non-union of mandible accompanied by bone loss.

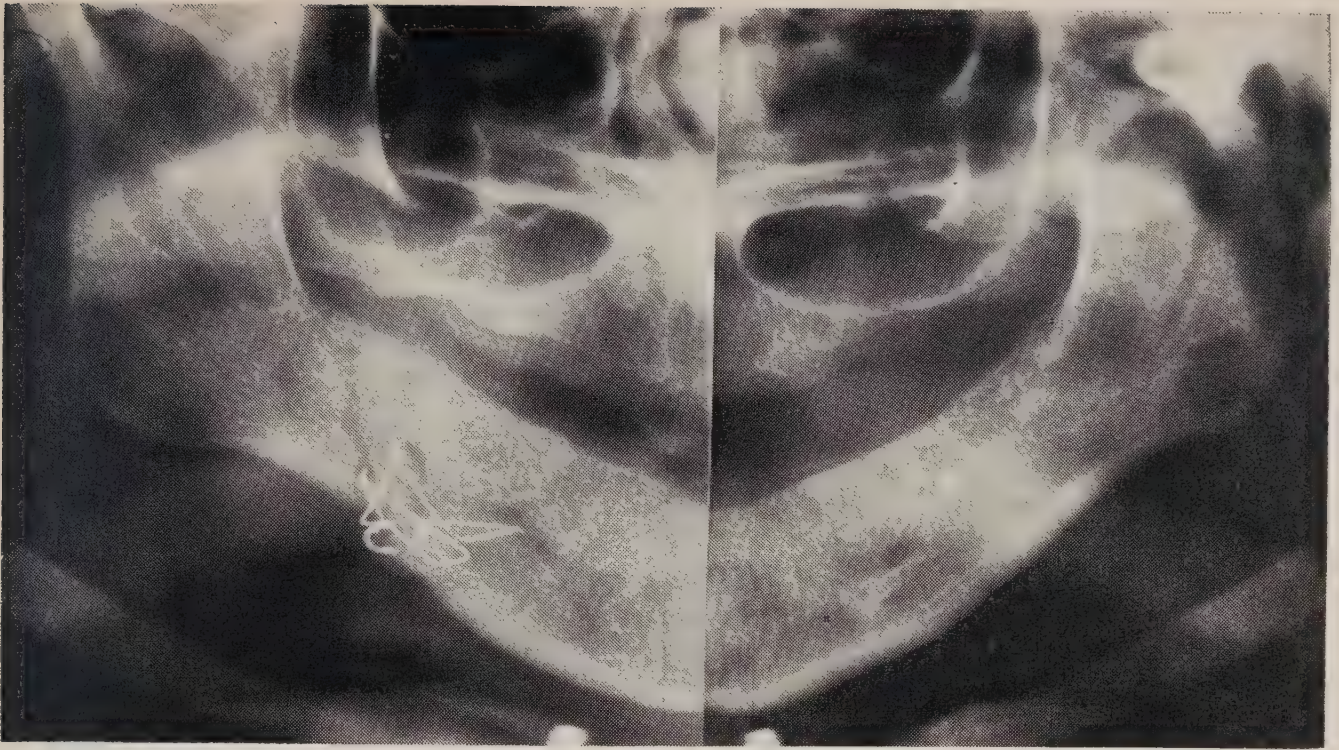


FIGURE 11 Malunion of mandible with loss of intermaxillary space on the right.

Moreover, allowance must be made for linear and dimensional distortion when interpreting periapical radiographs. These hazards disappear in panoramic radiography (Figure 3). Furthermore, since the beam is directed almost at 90 degrees to the long axis of the teeth, the resulting radiograph reveals the teeth in a truer position.

Dental root remnants are readily seen and their approximate position is easily established. Pathological conditions, such as cysts, residual roots or odontomes, are seen in their entirety (Figures 4 and 5).

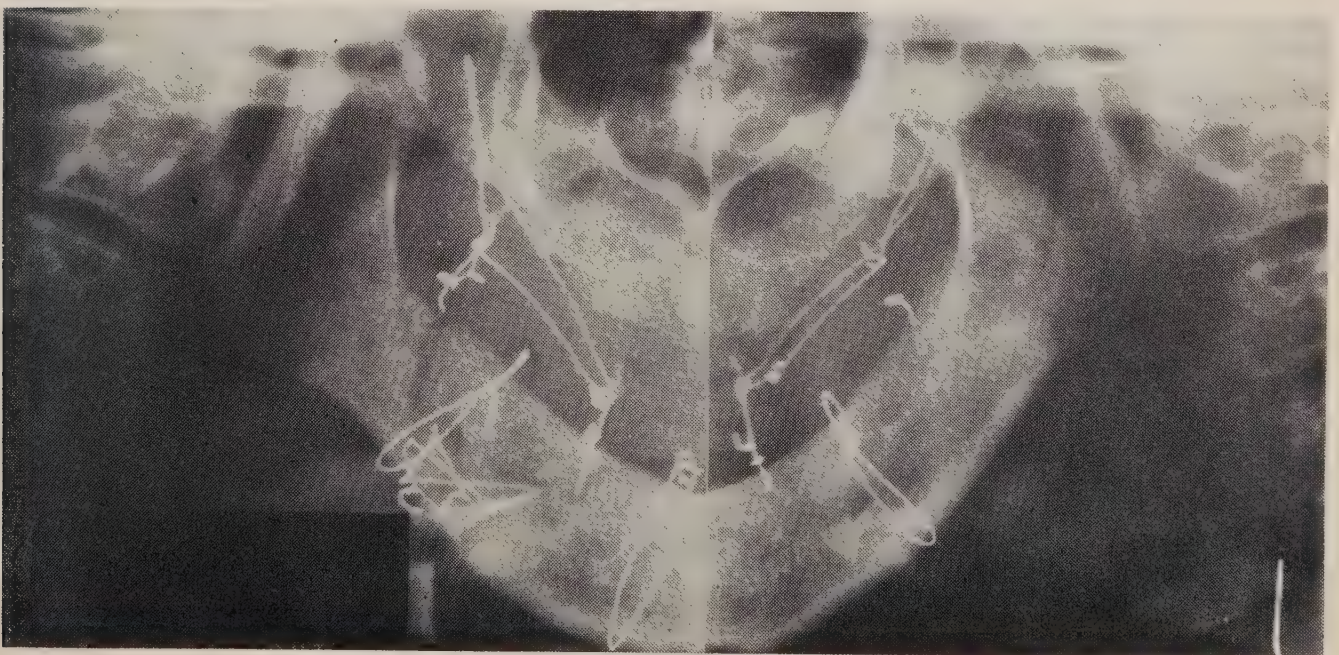
The borders of such lesions can be readily followed on the one radiograph.

Usually a complete intra-oral survey of edentulous mouths is no easy task. With a panoramic x-ray machine this becomes a very simple procedure.

Fractures are viewed at approximately 90 degrees to the surface of the mandible or maxilla, and the extent and direction of displacement in at least one plane is readily visualized (Figures 6-12).

The Panorex is very useful in cases of trismus affecting any of the muscles of mastication and inability to open the

FIGURE 12 Osteotomy of ascending ramus with restoration of intermaxillary space.



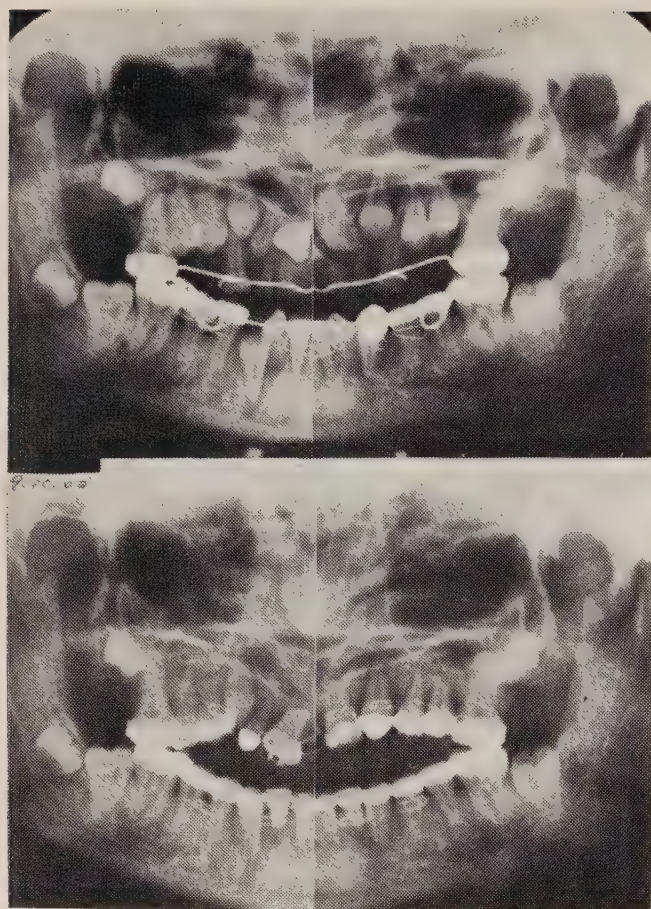


FIGURE 13 Cleidocranial dysostosis with retarded eruption of teeth.

mouth. The patient need only sit upright in the chair which is an integral part of the unit and hold his chin in a chin support during exposure of the film.

The amount of radiation delivered to the patient is apparently minimal for the results obtained. Although the head of

the machine takes 22 seconds to complete the circuit, the amount of radiation is claimed to be much less than in a complete periapical film survey.

This additional quality of panoramic radiography has also proved very useful for scanning and for general surveys of the maxillofacial areas (Figures 13-16).

The advantages of panoramic radiography in oral surgery may be summarized as follows:

1. A complete view of the jaws and surrounding structures is easily and consistently possible. Additional periapical radiographs may be necessary for finer detail in specific areas. Examination of the jaws can be more thorough.
2. In edentulous mouths, the presence of remnants of teeth, residual cysts or any other pathosis may be either eliminated or confirmed.
3. In fractures, the relationship of fragments can be easily established.
4. The borders of extensive pathological lesions can be readily traced and seen in their entirety.
5. Malposed teeth, such as impacted third molars, can be readily detected.
6. Panoramic radiographs are invaluable for patient education.

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FIGURE 14 Apertognathia.

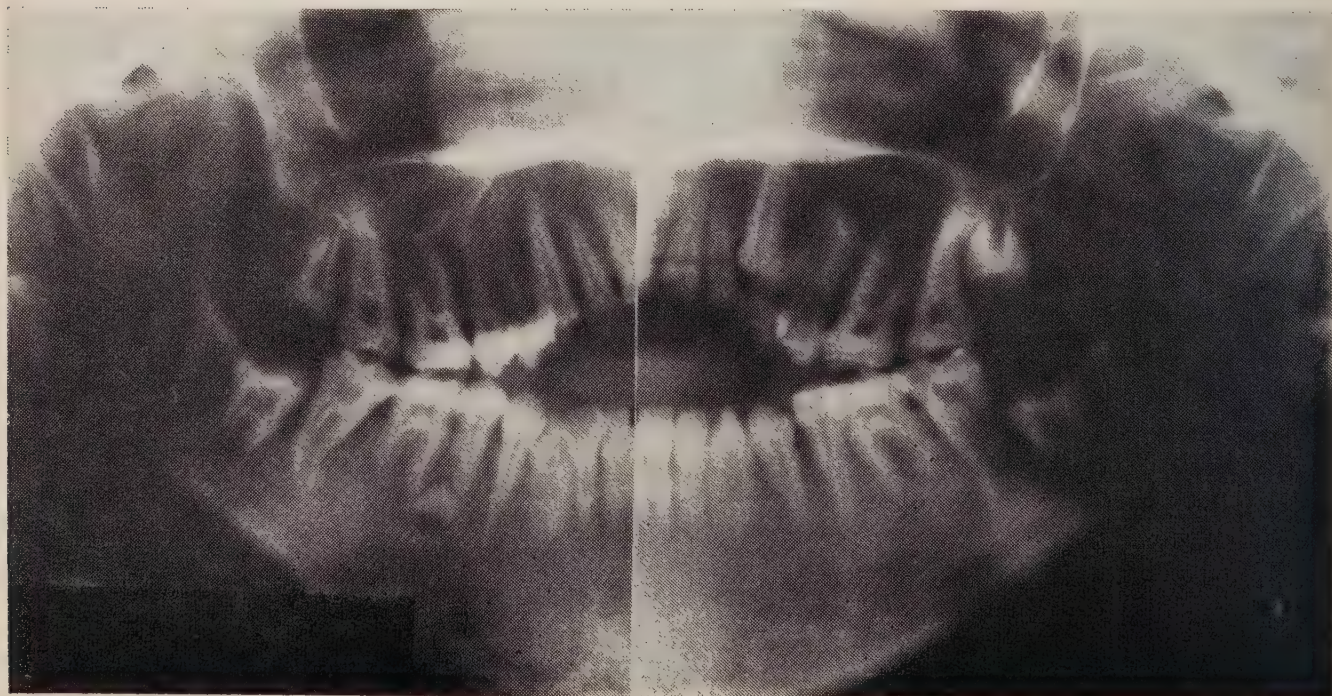


FIGURE 15 Top: prognathic mandible. Below: postoperative view following bilateral osteotomy of ascending rami. Acrylic splints with circum-mandibular and circum-zygomatic wiring were used.

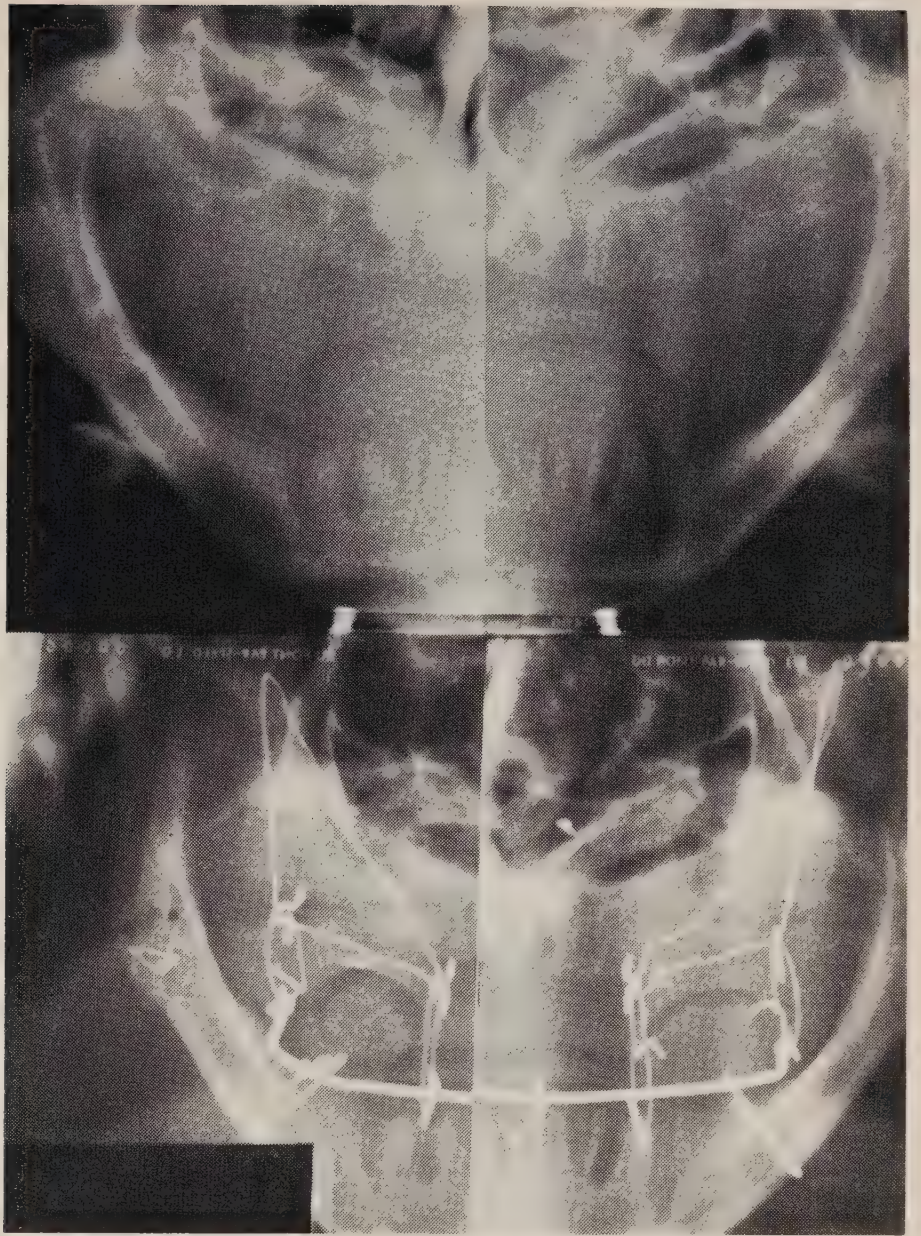
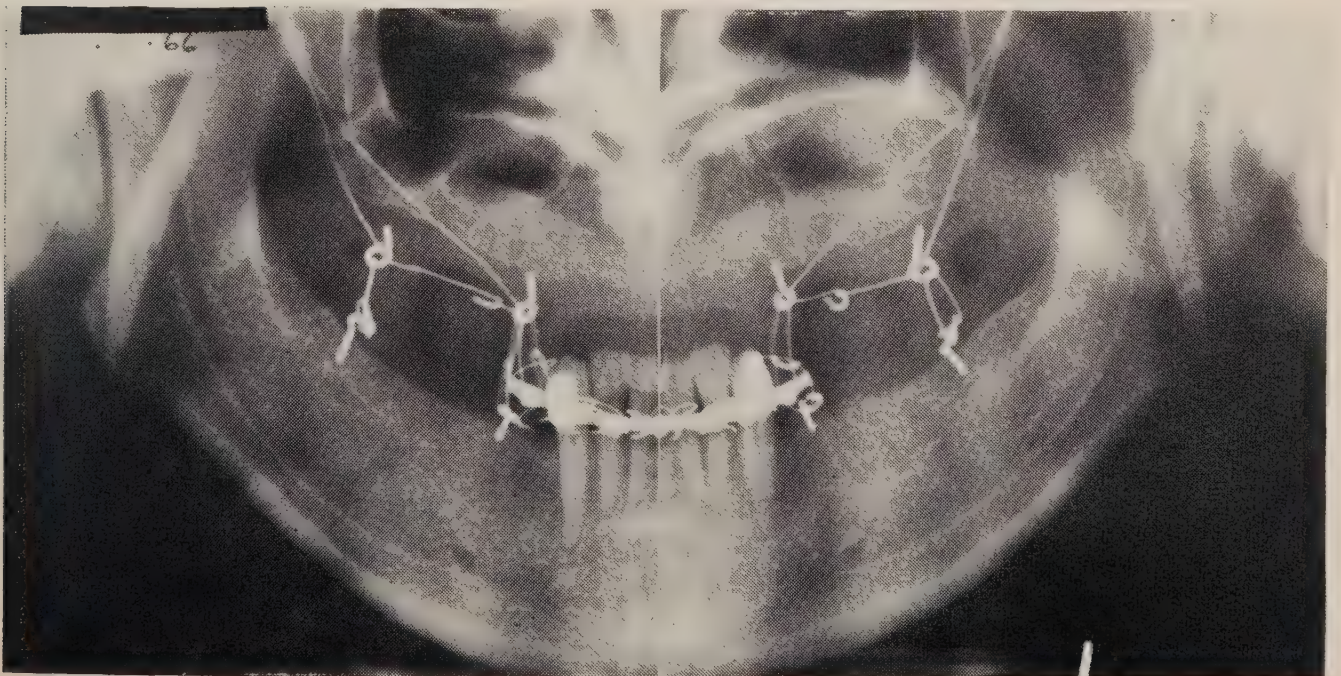


FIGURE 16 Prognathic mandible treated with bilateral osteotomy and intermaxillary splints.



Embryonal significance of epithelial odontogenic tumours

Although most epithelial odontogenic tumours do not resemble normal adult dental tissue, there are many similarities between the cells of such tumours and certain cells observed during odontogenesis. This may explain some apparent contradictions in the cytological and clinical behaviour of these tumours. Thus, ameloblastoma may be regarded as a benign proliferation of dental lamina-like cells whose apparent 'malignancy' merely reflects the migratory properties of the cells of the dental lamina.

Bien que la plupart des tumeurs odontogéniques épithéliales ne ressemblent pas au tissu adulte normal, on peut observer de nombreuses similarités entre les cellules de ces tumeurs et certaines cellules qui contribuent à l'odontogénèse. Cela pourrait expliquer certaines contradictions apparentes dans le comportement cytologique et chimique de ces tumeurs. Ainsi, on peut considérer l'améloblastome comme une prolifération bénigne de cellules semblables à celles de la lamelle dentaire, dont le caractère apparemment malin représente simplement les propriétés migratoires des cellules de la lamelle dentaire.

Cell characteristics of any tumour derive from two main sources. They reflect primarily the basic properties inherited directly from the parent tissue. These properties may be secondarily modified by neoplastic deviation — minimally in benign and more severely in malignant lesions. Willis¹ believed that tumour classification and interrelationship should reflect these fundamental properties so that groupings could be of use in predicting the expected behaviour of any tumour allocated to them. He therefore recommended initial division according to the tissue of origin of a tumour and further subdivision by the degree of benign or malignant neoplastic deviation present.

Gorlin, Meskin and Brodey² could only partially follow Willis' lead in their classification of odontogenic tumours because

specific parent cells of most of the epithelial odontogenic tumours have never been finally identified. Benign tumours frequently show many of the properties seen in their tissues of origin and as most odontogenic tumours are cytologically benign, one might also expect them to reflect similarity with their parent cells. Most of them, however, show no resemblance to adult dental tissue. Therefore, the possibility remains that they may be representative of proliferations of cells seen only during odontogenesis. Such cells would ordinarily degenerate and disappear.

This article discusses this possibility by pointing out the many similarities between certain individual tumours and cells representative of some of the stages during tooth formation.

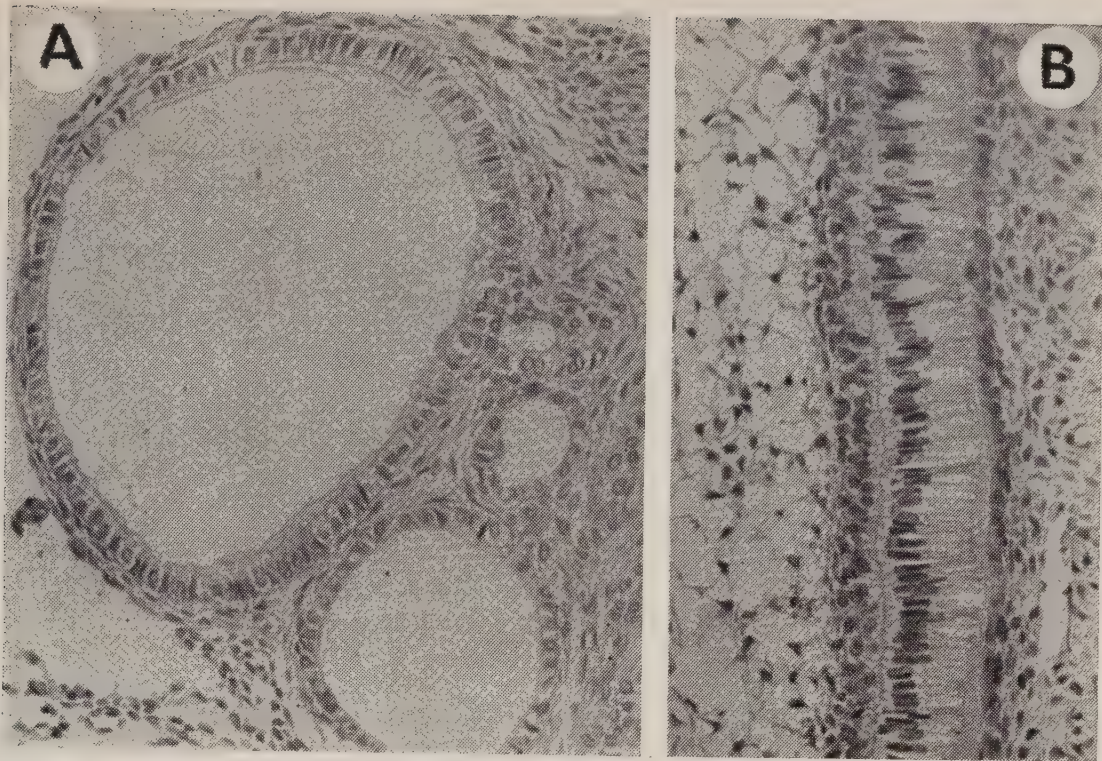


FIGURE 1 A, adeno-ameloblastoma. B, inner enamel epithelial 'preameloblasts.' Note the similarity between the tall strongly polarized columnar cells lining the 'duct-like' structures of the adeno-ameloblastoma, and the cells of the inner enamel epithelium prior to induction of odontoblasts. Haematoxylin and eosin; x160.

ADENO-AMELOBLASTOMA

There is a close correlation between the cells of the adeno-ameloblastoma and the more cervically situated cells of the inner enamel epithelium.³

Clinically, and despite its name, this benign tumour is unquestionably of odontogenic origin. It occurs exclusively in the tooth-bearing area, and often in association with dentigerous cyst epithelium.

Morphologically, the similarity between 'ductal' cells of the tumour and inner enamel epithelial cells (Figure 1) was noted by Miles,⁴ and later by Lucas⁵ who used the title "tumour of enamel organ epithelium."

Physiologically, the cells of the duct-like structures appear to be truly secretory.⁶ The inner enamel epithelium is the only place where secretory odontogenic cells are found.

Histochemically, the tumour cells are associated with glycogen, diastase-PAS positive material, alcian blue positive material, and silver positive material. All of these materials are also found in association with the more cervically situated cells of the inner enamel epithelium.

Ishikawa and Mori⁷ have shown that a few concentric layers of flattened cells frequently surround the secretory duct-like structures of the tumour. These workers considered the possibility that these cells may be analogous to the stratum intermedium, and they demonstrated histochemically that both groups of cells contained increased amounts of alkaline phosphatase.

AMELOBLASTOMA

This is a tumour of apparent contradictions. It seems completely benign cytologically, yet invades locally into adjacent tissue in an aggressive manner.

Clinically, an odontogenic origin is supported by its common occurrence in the tooth-bearing area and close association with dentigerous cyst epithelium. The tumour is usually intrabony but is otherwise identical with its rare 'soft-tissue' counterpart and both presumably originate from the same parent cells. In this context it is significant that the lamina, which extends from the surface mucosa to the underlying tooth crypt, is the only

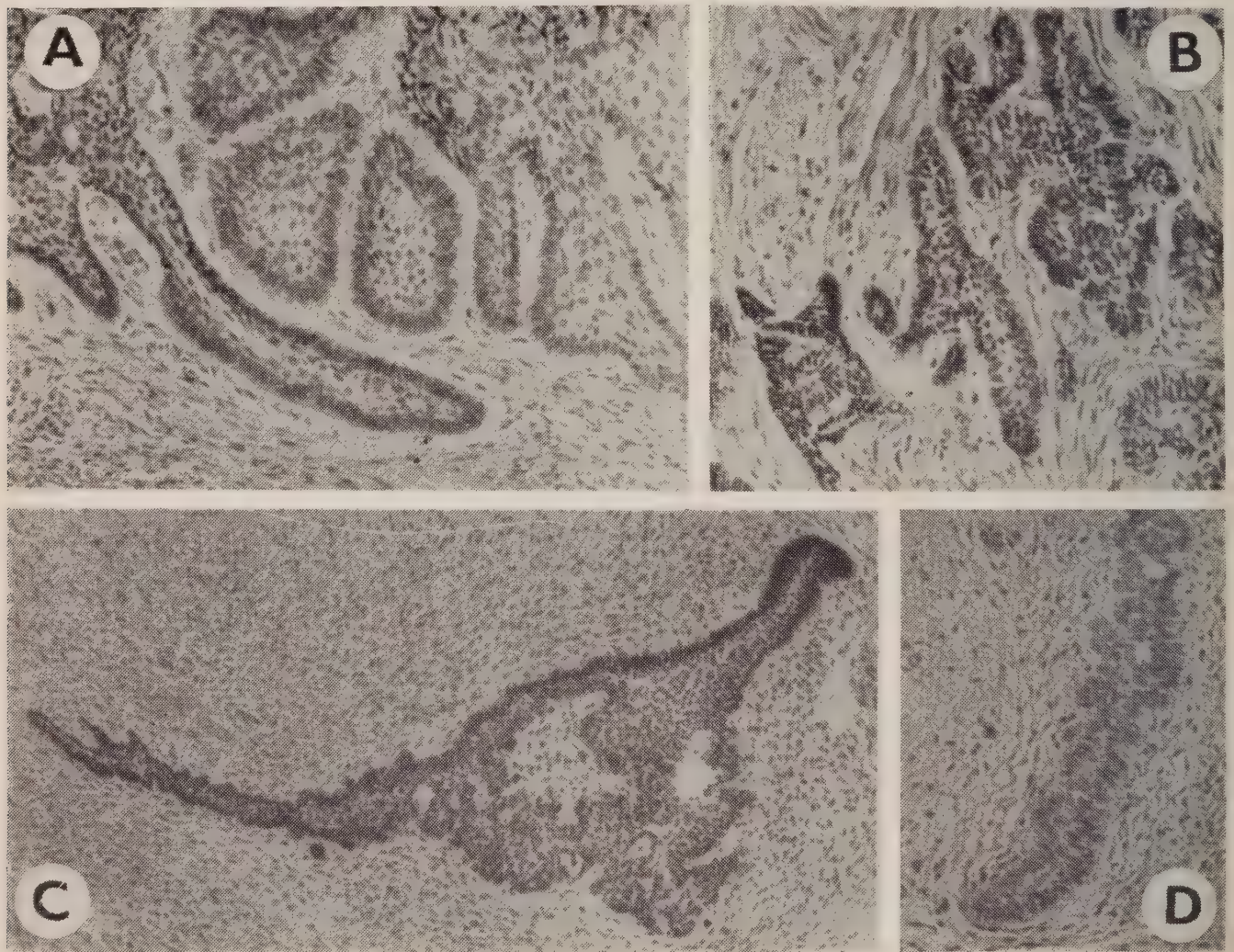
epithelial structure consistently common to both the intrabony and soft tissue situations. The tumour occurs most frequently at the angle of the mandible (approximately 70 per cent), where embryonic-type lamina cells are known to proliferate actively and continuously for at least four years after birth, prior to the formation of the third molar tooth bud.

Morphological similarity was used by Manley⁸ to advance strong arguments that the cells were derived from the lamina. Subsequent ultra-structure studies also induced Moe et al⁹ to conclude that ameloblastoma cells most closely resemble those of the lamina. The acanthomatous, plexiform and follicular patterns seen in the tumour resemble respectively the tissue from which the lamina derives, the lamina proper, and the dental organ which its terminal cells are destined to produce.

Physiologically, there is similarity of behaviour between the two tissues. Teeth first evolved in lower species by specialization of the surface exoskeleton — the modified fish scale. In higher animals the occurrence of increased structural complexity in the tooth is associated with migration to a more sheltered intrabony developmental environment. Nevertheless, ectodermal derivation of the formative cells is still maintained through the medium of the dental lamina. Thus a fundamental property of the lamina cells — and one which is usually only thought of in association with neoplastic epithelium — is the ability to invade connective tissue. The lamina does this by a pattern of contiguous permeation in solid proliferating epithelial columns, very similar to the peripheral invasion's undertaken by ameloblastomatous cells (Figure 2).

Cytologically, the ameloblastoma com-

FIGURE 2 A and B, ameloblastoma. C and D, dental lamina. Note the similarity between the actively invading edge of the ameloblastoma and the proliferating dental lamina. Haematoxylin and eosin; x63.



pletely fulfils accepted standards of a benign tissue. Its histological pattern is extremely regular, mitoses are rare, abnormal mitotic forms are never seen, and the occurrence of unequivocal metastasis — the other indisputable hallmark of malignancy — is extremely dubious.

The conflicting cytological features and aggressive behaviour seen in the tumour may thus be rendered logically compatible if the lesion is regarded as a truly benign proliferation, which derives its so-called 'malignant' properties from the invasive characteristics inherent in and inherited from the parent cells of the lamina.

COMPLEX AND COMPOUND COMPOSITE ODONTOMES

The epithelial cells comprising these tumours are fully differentiated in respect to their secretory and inductive properties, but they have not the full morphogenetic potential of mature ameloblasts.

Clinically, most of these lesions are hamartomata. They often develop coincident with the accepted period of tooth

formation, sometimes replacing a tooth of the normal series, or growing only to the overall bulk of a normal tooth. Only a relatively few are truly neoplastic in nature and hence merit inclusion in a tumour classification.

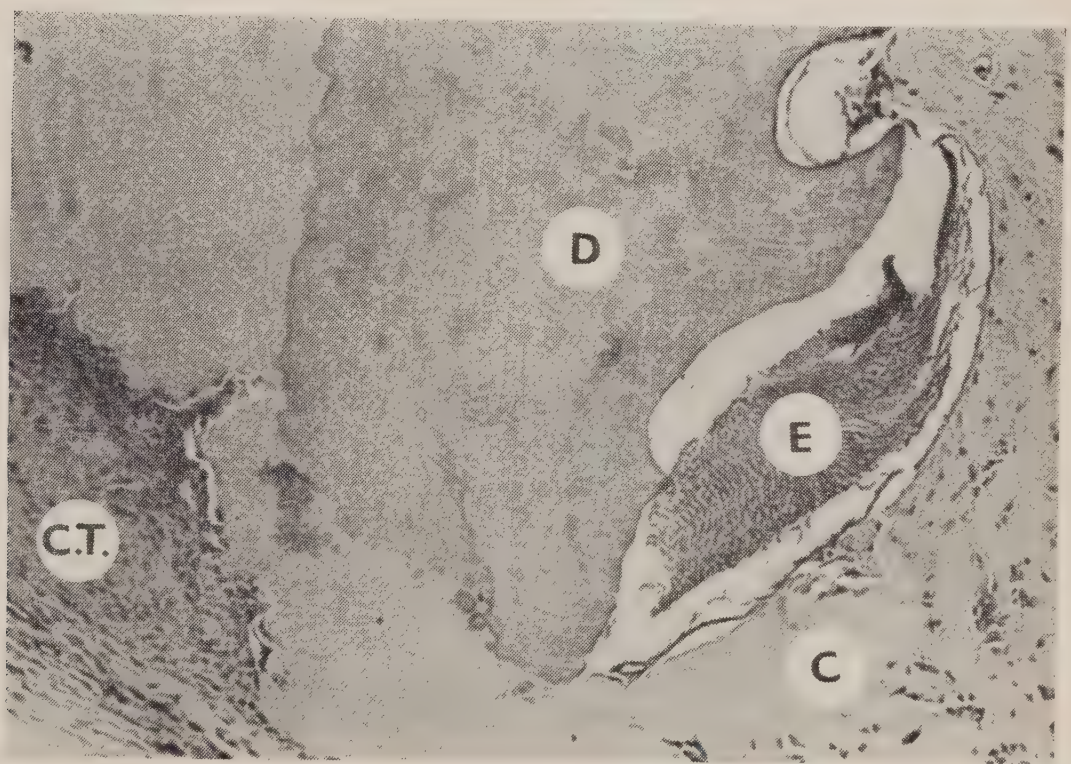
Morphologically, these tumours contain all the constituent elements seen in adult teeth (Figure 3). In complex odontomes the constituent tissues are distributed completely at random. In compound odontomes the relative positions of each dental tissue are normal but the overall size of the resulting structure is faulty, and the 'teeth' which result are miniature and multiple. Possibly the factors which control shape differ from those which control size in tooth development. In any event, the two distinct types of tumour suggest that these properties can be developed or impaired independently.

AMELOBLASTIC FIBROMA

The properties of these tumour cells equate most closely to those of the root sheath of Hertwig.

Clinically, the lesion is completely be-

FIGURE 3 Complex composite odontome. This example shows all the tissues of the mature tooth but without attempt at morphological organization. E, enamel matrix; D, dentine with tubules; C, cellular cementum; CT, fibrous connective tissue. Haematoxylin and eosin; x160.



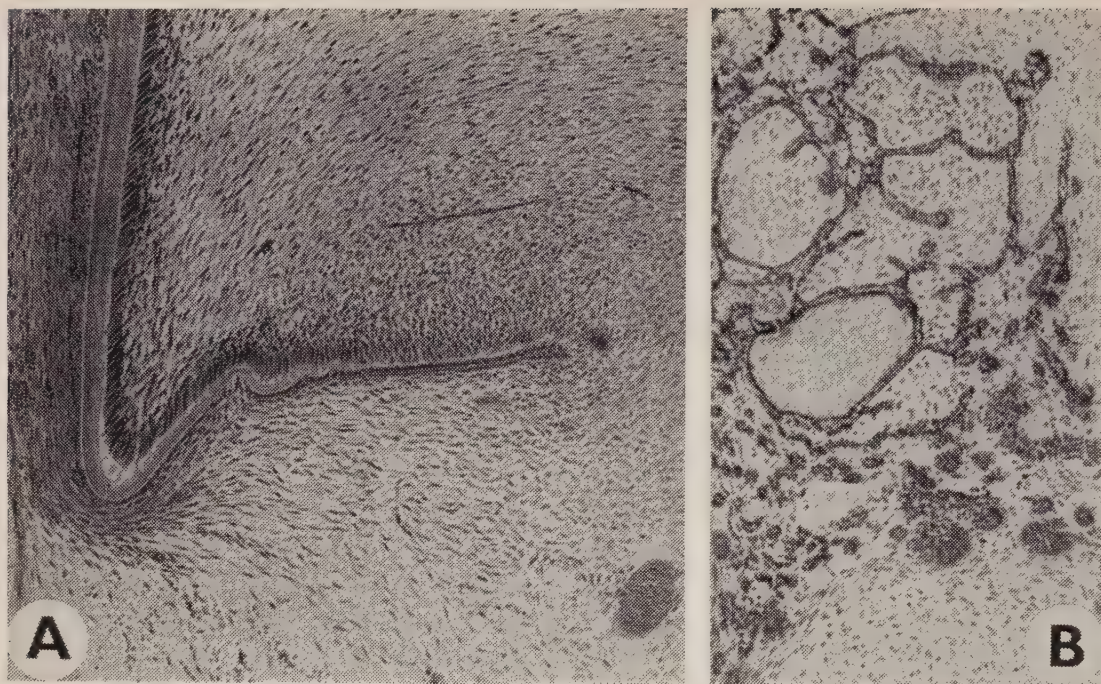


FIGURE 4 A, root forming epithelium. B, ameloblastic fibroma. Note the similarity between the double-layered strands of epithelial cells and the associated embryonic type fibrous connective tissue seen in both structures. The epithelial diaphragm of the forming root of a pig is shown due to difficulty in obtaining human material. Haematoxylin and eosin; x63.

nign. It occurs in younger individuals, usually during the accepted period of tooth formation, and especially coincident with active root formation. Unlike the adeno-ameloblastoma and ameloblastoma, the ameloblastic fibroma is not markedly associated with dentigerous cyst epithelium, nor thereby indirectly with crown and enamel formation. On the contrary, there is some suggestion that it is more frequently observed in relation to the radicular tissues.

Morphologically, the epithelium forms two patterns. The first consists of a follicular form, but one in which the centrally situated cells (unlike the enamel organ) remain polyhedral, without any marked tendency for intercellular fluid aggregation to result either in stellate reticulum or ultimate cyst formation. It is notable that analogy exists during normal odontogenesis, where the stellate reticulum is restricted to the coronal enamel-producing areas and does not develop in association with root-forming cervical loop epithelium. The second pattern is formed by double-layered strands of epithelial cells which could morphologically resemble both the epithelial diaphragm or the succedaneous lamina.

Physiologically, both tumour epithelium and root forming epithelium induce proliferation of associated embryonic type fibrous connective tissue (Figure 4). The existence of the so-called 'immature' dentinoma is an important factor in defining the fundamental properties of this particular odontogenic epithelium. The 'immature' dentinoma is basically an ameloblastic fibroma where varying amounts (usually minimal) of dentine have been induced within the embryonic connective tissue. It is significant that the epithelium does not seem physiologically capable of responding to the presence of this dentine by any reciprocal production of enamel matrix — a major feature differentiating crown and root-forming odontogenic epithelium. On the contrary, Gorlin et al² record that cementum formation has occasionally been reported. This sequence seems to equate closely with the events seen in root formation.

DISCUSSION

Absolute proof of analogy between the cells of the individual tumours and varying stages of odontogenesis is not yet pos-

Summary of the embryonal concept of epithelial odontogenic tumours.

Benign* proliferations of cells which still possess formative embryonic potential	Normal sequence of tooth formation	Cystic and non-cystic proliferations of cells with 'spent' (i.e. post-formative) embryonic potential
Ameloblastoma ←	Dental lamina	→ Gingival cyst
Adeno-ameloblastoma ←	Internal enamel epithelium ('pre-ameloblasts')	→ Dentigerous and eruption cysts
Complex and compound odontomes ←	Ameloblasts	
	Root sheath of Hertwig	→ Apical and lateral periodontic cysts
Ameloblastic fibroma ←	1. Fibrous connective tissue induction	
'Immature' dentinoma ←	2. Fibrous connective tissue plus dentine induction	

*Malignant odontogenic epithelial proliferation results in intra-alveolar carcinoma. It is significant that Gorlin¹⁰ has observed true carcinomatous changes occurring in association with so-called 'locally malignant' ameloblastomatous tissue.

sible, except by the demonstration of physical continuity of tissue in the unlikely event of the tumour developing during active tooth formation. Short of this, evidence must remain circumstantial, although the many common morphological and physiological features which do exist are probably more than mere coincidence. The 'embryonal' concept is a challenge for future proof or disproof. It is also a logical outgrowth of the principle of induction which the present classification² uses somewhat empirically to subdivide epithelial odontogenic tumours.

SUMMARY

This article briefly describes established epithelial odontogenic tumours. The calcifying epithelial odontogenic tumour and the granular-cell variants of the ameloblastoma have been excluded because the few reported cases do not permit an accurate assessment of their characteristics. Many similarities between cells of the other epithelial odontogenic tumours and cells seen during various stages of tooth formation are cited. If the work of Man-

ley⁸ and Moe et al⁹ is acceptable, this similarity may explain the otherwise incompatible cytological and clinical behaviour of ameloblastoma. In that case the invasiveness of this tumour is not derived from neoplastic infiltration. It may be more logically viewed as a truly benign proliferation of dental lamina-like cells whose local aggressiveness and 'malignancy' reflect the basic migratory properties of cells of the lamina.

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Colour changes in the oral mucosa

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Discoloration of the oral mucosa may result from pathological conditions of local or systemic aetiology. Addisonism, vitamin B₂ deficiency, jaundice, cyanosis and polycythaemia are among the systemic diseases known to produce oral discoloration. Amalgam embeddings, tobacco stains and tattoos are examples of local conditions which produce colour changes in the oral mucosa. Pigmentation may also result from endogenous conditions which include heavy metal pathoses such as bismuthism, plumbism, argyria, mercurialism and arsenism.

La décoloration de la muqueuse buccale peut être le résultat d'états pathologiques locaux ou systémiques. La maladie de Addison, l'avitaminose B₂, la jaunisse, la cyanose et la polycythémie sont parmi les maladies qui causent le plus souvent une décoloration des muqueuses buccales. L'implantation de débris d'amalgame, les taches de tabac et les tatouages sont quelques exemples de changements de couleur de la muqueuse causés par des facteurs locaux. La pigmentation peut aussi être le résultat de facteurs endogènes comme les maladies causées par des métaux lourds, le bismuth, le plomb, l'argent, le mercure et l'arsenic.

The colour of normal gingiva has been described as "variable, ranging from a pale pink to a deep bluish purple. Between these limits of normalcy are a large number of colours which depend primarily upon the intensity of melanogenesis, the degree of epithelial cornification, the depth of epithelialization and the ar-

rangement of gingival vascularity. Moreover, colour variations may be uniform, unilateral, bilateral, mottled, macular or blotched, and may involve the gingival papillae alone or extend throughout the gingivae into other oral tissues."¹

Discoloration implies the state of being changed to a different colour. In the oral

mucosa, discoloration may result from pathological conditions of both local and systemic aetiology. These colour changes are often of distinct diagnostic value. Both normal and abnormal colorations of the oral tissues have been referred to by many and varied descriptive terms.

ORAL AND CUTANEOUS PIGMENTATION

In 1946, Dummett² examined 600 Negroes of varying shades of complexion to determine the relationship of oral to cutaneous pigmentation. In the cases examined, gingival tissue pigmentation was directly proportional to skin pigmentation in a large majority of cases; that is, Negroes of very dark and brown complexion showed considerable oral pigmentation while Negroes of light brown and fair complexion showed lesser amounts. However, there was a significant number of very dark Negroes with no clinical evidence of oral pigmentation. Clinically non-pigmented gingiva is found more often in fair-skinned individuals, while pigmented gingiva is usually seen in persons of darker complexion.

In orochromotometry, the DOPI assessment^{3,4} is an acceptable epidemiological tool which will procure quantitative and qualitative valuations and further information about the degree of intensity and frequency in occurrence of oral pigmentation.

DISCOLORATIONS FROM SYSTEMIC DISEASE

Addison's Disease. — This malady is also known as addisonism, bronzed skin and melasma suprarenale. It is one of the better known endocrinopathies and is associated with a disturbance of the adrenal cortex and parathyroid glands. The two adrenal glands have important regulatory functions in the metabolism of carbohydrate, water and salt. There is a relationship between the adrenal cortical hormone and the gonads. Hypofunction of the adrenal cortex produces symptoms of Addison's disease. Loss of function, atrophy or actual destruction may be due to other diseases, such as tuberculosis.

Addison's disease is characterized by a bronzing of the entire body, but colour changes are especially prominent in the folds of the skin and on areas exposed to the sun. Progressive anaemia is another significant feature.

The most outstanding oral sign is a diffuse pigmentation of the gingiva, tongue, buccal mucosa and hard palate. In the gingiva, the pigmentation is brownish or black and may be spotty or streaked. The palate, floor of the mouth, and inside of both cheeks and lips may display a definite bluish brown pigmentation. The pigmentation is caused by melanin deposited in the basal layer of the epithelium.

Although cutaneous pigmentation often disappears following therapy, oral pigmentation tends to persist. Adrenal corticosteroids are successfully used in the treatment of Addison's disease, although their continued administration is fraught with dangers incidental to the disturbance of the normal body defence mechanism.

Ariboflavinosis. — Riboflavine (Vitamin B₂), a constituent of the retinal pigments, is involved in the conversion of tryptophane to nicotinic acid. A deficiency or absence of riboflavine affects the eyes, skin and oral mucous membranes. The ensuing cheilosis produces fissuring and scaling of the lips.

Colour changes of the extra- and intra-oral tissues as a result of ariboflavinosis are characteristic. A bluish purple, diffuse discoloration is seen in the buccal mucosa, on the tongue and the vermilion borders of the lips. The tongue is frequently described as being magenta. Some investigators have also noted an opalescent sheen on the buccal and labial mucosa. These colour changes are frequently overshadowed by the lesions of the oral mucosa and the angular cheilosis.

All of the signs and symptoms are immediately relieved following the administration of riboflavine.

Jaundice. — Icterus is a symptom of an underlying disturbance affecting the gallbladder, liver and bile ducts. This gives rise to the lemon yellow to olive green discoloration of the skin, sclera of the eye and mucous membranes which occurs as

a result of excess bile pigment in the blood. The condition is usually precipitated by obstruction of bile ducts, liver disease or duodenal catarrh.

A syndrome characterized by hyperbilirubinaemia, jaundice produces a yellow-green appearance of the skin and the oral mucosa in clinically non-pigmented persons. Insofar as the oral tissues are concerned, the colour changes are especially prominent at the junction of the hard and soft palates. The characteristic yellow colour affects the tongue and all of the oral mucosa. Discoloration of the teeth is an even more prominent finding. The teeth become yellow or greenish due to impregnation with bile pigment.

Cyanosis. — This term denotes a predominance of reduced haemoglobin in the vascular system. Cyanosis occurs when the absolute reduced haemoglobin reaches 5 Gm. per cent. The condition is associated with heart disease, and the blueness of the skin is often due to cardiac malformation which produces insufficient oxygenation of the blood (methaemoglobinaemia). Certain drugs, such as acetanilide, can also provoke cyanotic changes.

In cyanosis, the colour of the integument of fair-skinned persons varies considerably. The hue ranges from a deep bluish purple to heliotrope. In the mouth there is usually a bluish cast to clinically non-pigmented gingiva, buccal mucosa, palate and tongue. An associated bluish colour of the face and hands may indicate a central or peripheral cyanosis.

The detection of cyanotic changes in heavily pigmented skin or oral mucosa is difficult if not impossible.

Polycythaemia. — This general term denotes an increase in the number of erythrocytes in the circulating blood. Primary polycythaemia (vera) is a rare, fatal disease of idiopathic aetiology. Secondary polycythaemia, a common form, occurs secondary to some other disease such as congenital heart disease and pulmonary emphysema.

In primary polycythaemia, which has been described as occurring very rarely in Negroes, the onset is insidious. There is a purplish red face and skin coloration, and the finger tips appear cyanotic.

Orally, there is a characteristic generalized purple redness of the hypertrophied gingiva, buccal mucosa, palate and tongue. Burket⁵ portrays the enlarged tongue as looking as though crystal violet had been painted on it. Severe haemorrhages follow the slightest trauma.

In secondary polycythaemia, the generalized skin colour is florid, but the cyanosis is much more distinctive.

Treatment includes lowering of the blood volume, repeated venesection which is considered moderately successful, and the use of agents such as radiophosphorus and triethylene melamine to decrease the activity of the bone marrow.

TOBACCO STAINING

Soft Tissues. — The continued contact between tobacco or snuff and the oral mucous membrane produces a brownish black mucosal staining. The pigmentation is confined to the superficial layers. A similar condition of oral mucosal staining occurs when the areca or betel nut is used as a masticatory agent.

The grey brown hazy coloration frequently seen on the oral mucous membranes of inveterate smokers has been attributed to the carbon and other combustion products of the smoking habit. This should be differentiated from the normally occurring mucosa bucca cinerea.³

Discoloration from tobacco is common and is often proportional to the degree of usage of this product. Insofar as the oral soft tissues are concerned, there may be a staining or irritating effect associated with the use of tobacco, whether it is smoked or treated as a masticatory agent.

Greater attention has been devoted to the potentially more dangerous production of white, dyskeratotic areas as a result of the chewing or holding of cuds of snuff or tobacco in the mouth.⁵ The evidence of its role in producing leucoplakia of the oral mucous membrane following extended contact with tobacco has been convincing and has received much publicity. Present evidence is not as clear-cut that tobacco smoke will bring about the development of a malignant lesion. Mouth cancer is frequently seen among betel nut chewers.

Melanoglossia or black hairy tongue is frequently associated with the use of antibiotics. Tobacco has also been indicted in the black colour of the hairlike filaments.

The colour change in tissue appearance is usually not distinctive enough to render aesthetics a major problem. Reduction or cessation of the use of tobacco should be advised, however, should there be initial dyskeratotic tissue changes. If changes are more advanced, consultation with an oral pathologist and oral surgeon is advocated.

Hard Tissues. — Staining from the use of tobacco occurs mainly on the oral hard tissues. Loss of tooth structure results from chewing tobacco containing large amounts of abrasive agents. The dental wear is found primarily on the occlusal and incisal surfaces, and these are the principal areas where yellow, brown or black tobacco stains occur, having been forcibly ground into the hard tissues. Black or brown stained deposits are also seen on calculus and on prosthetic appliances.

FOREIGN BODY DISCOLORATION

Among the pigmentations encountered in the oral mucosa are the blue-black maculae and discoloured areas which result from the embedding of foreign bodies, such as amalgam, in the gingiva. Amalgam discoloration is probably the most frequently seen. It occurs either through the accidental introduction of copper or silver amalgam into the tissues during surgical or restorative operations, or from extended contact between an amalgam restoration and the gingiva or other periodontic tissues.^{5,6}

Portions of a restoration adjacent to the tooth being removed may be fractured and the fragments embedded. If not removed, the fragments are enveloped by the healing process. They provoke little irritation, no subjective symptoms, and produce as the only aftermath a bluish-black coloration of clinically non-pigmented tissues.

Minor injuries to the gingiva sometimes

occur during restorative procedures. Thus, amalgam particles, together with the dusts from abrasive discs, may be introduced into the soft tissues, producing clinical effects similar to those of amalgam fragments.

Radiographs of these pigmented areas sometimes reveal the radiopacity characteristic of foreign bodies if the amalgam particles are large enough and located in sites that are not superimposed by other dental structures. Similar experiences are noted with transillumination.

The foregoing pigmentations must be differentiated from the stomatitides which may be associated with amalgam fillings. The latter are inflammatory reactions which represent an allergic response rather than a tissue intoxication.⁶

Since there are no deleterious effects, these discoloured areas may be left alone. If patients become unduly concerned about aesthetics, the embedded amalgam may be surgically removed.

HEAVY METAL DISCOLORATION

Bismuthism. — One of the results of bismuth therapy may be endogenous bismuth pigmentation of the oral mucosa and the bismuth line in the marginal gingiva. In some cases, the slight pigmentation is not attended by any other signs or symptoms, while in others there is a distinct blue-black, sharply limited, marginal gingival pigmentation. One of the most consistent findings along with pigmentation is inflammation from irritation. Oral sepsis, calculus, and unserviceable restorations are frequent irritants. There may also be a metallic taste, an associated stomatitis, burning mucosal sensations and, eventually, sensitive ulcerations.

The prolonged systemic administration of heavy metals may have a cumulative effect in the gingival tissue when there is an impairment of the free and continuous circulatory flow.

Oral discoloration due to bismuth compounds are now much rarer clinical phenomena than in the past when these compounds were used extensively in the treatment of venereal disease. Bismuth

preparations have been used in ulcerative necrotizing stomatitis with doubtful success, and there is scant scientific evidence which would bolster their usage in such instances. The pharmacotherapeutic utilization of medications containing bismuth is currently the most common source of bismuth toxicity, although cases in which pigmentation has occurred as a result of occupational exposure have been known.⁷ Various medicinal pastes and salves containing bismuth may produce pigmentation if they are applied for any lengthy periods to granulating surfaces. The pigmentation may occur with ulcerative lesions.

As in other metallic stomatitides, the control of bismuth discoloration through the maintenance of scrupulous oral hygiene by both patient and dentist is significant. Reduction in dosage and duration of administration will probably lessen the pigmentation occurrence. Orban used Superoxol (30 per cent hydrogen peroxide) and reported some success in eliminating bismuth pigmentation of the oral tissues.⁶ Oxidation of bismuth sulphide occurred with formation of the soluble white bismuth sulphate which was eventually eliminated.

Plumbism. — Another chronic form of poisoning may be induced by the absorption of lead or one of its salts. Initial symptoms of plumbism are vague and may include loss of appetite, nausea, abdominal colic and wrist or foot drop. Orally, there may be all the symptoms of a necrotizing ulcerative stomatitis. When absorption of lead occurs, the characteristic Burtonian line may result. This is a bluish lead sulphide line along the interproximal and free gingival margins, the buccal mucosa and the tongue. The linear markings are composed of numerous microscopic maculae which give a stippled appearance to the discoloration. There may also be excessive salivation, a sweetish metallic taste and an associated lymphadenopathy.⁵

In reviewing their clinical experiences, Cohen and Ahrens⁸ called attention to the fact that lead lines on the gingiva are commonly found in adults affected by plumbism. However, it is unusual to find

these lines in children. Tanis⁹ and Chisolm¹⁰ indicated that in plumbism, when tissues are analysed for lead content, the bones have contained the highest concentration, the liver and kidneys next and the brain the least amount.

Nowadays lead is seldom used medically. Consequently, lead toxicosis is rarely seen, but, when it occurs, it is chiefly as a result of occupational overexposure. Poisoning and tissue colour changes arise also from contamination by lead water pipes, as well as certain paints, toys or dishes.

Ascorbic acid administration has been shown to protect workers against lead poisoning.¹¹ Chelating agents such as ethylene diaminetetra-acetic acid is the drug of choice in treating plumbism from organic or inorganic lead compounds. Once again, scrupulous oral hygiene is essential.

Argyria. — Prolonged exposure to silver salts may produce a permanent greyish to bluish black discoloration of the skin and mucous membranes. This 'argyria' may be localized or diffuse, depending upon the nature of absorption of the silver compounds.

The earliest evidences of pigmentation may occur in the mouth where the discoloration is diffused throughout the oral mucosa and, as a consequence, may be seldom noticed by the patient. With increased silver poisoning, the oral tissues become bluish black and may develop a shiny metallic lustre. Silver poisoning was more common when silver nitrate was used internally in the treatment of gastric ulcers. Local dark grey or black discoloration occurs following the application of silver nitrate to the oral soft and hard tissues.

Discoloration produced from the deposition of silver in the tissues eventually disappears without resort to the use of other drugs. Where other techniques have been used, elimination of pigmentation has not been successful.

Mercurialism. — Chronic poisoning from mercury is referred to as mercurialism, mercurial ptyalism, hydrargyrisms and hydrargyria. The oral symptoms include

an ulcerative stomatitis, excessive viscid salivation, a metallic taste and a diffuse blue-grey or black gingival pigmentation. Very often there is accompanying destruction of the alveolar process with probable loss of teeth. The irritation and effects upon these tissues have been attributed to the mercuric sulphide.

During the nineteenth century, mercurial intoxication was rather common because of the frequent use of calomel (mercurous chloride) as an antisyphilitic and purgative. As in the case of bismuth, mercurial poisoning is now rare. When it occurs, it is from occupational contact or drug overdosage.

Treatment for the actual symptoms usually overshadows any concern about pigmentary manifestations. Strict oral hygiene, the use of oxidizing agents and systemically supportive treatment are the choice for the former. Atropine can be prescribed to reduce the salivary flow. The pigmentation is automatically reduced with systemic improvement.

Arsenism. — One of the most common causes of chemical dermatitis is arsenic. Chronic arsenical intoxication produces a generalized skin pigmentation following prolonged use of the drug. The occurrence of pigmentation is a variable finding. This pigmentation, not metallic in nature, is due to melanin or a melanoid substance.

Arsenic is used in the treatment of other dermatoses and may contribute to an augmentation of the initial hyperpigmentation associated with herpetiform dermatitis, lichen planus, psoriasis and eczema. Changes in the oral tissues following arsenical administration are seldom seen. When an arsenical stomatitis does occur, however, the lesions are similar to those of a necrotizing ulcerative stomatitis and the pain is intense.

Arsenical compounds are used in dyeing fabrics, for the preservation of animal skins and in embalming. Arsenic has legion uses in industry ranging from the manufacture of insecticides to the production of electroplates. Oral pigmentation in arsenical stomatitis is not a problem. Treatment of the painful inflammatory aspects includes the use of topical anaesthetic ointments.

TATTOOS

Tattoo is a term originating from the Polynesian 'tatau' (artistic). A practice dating back as far as 4000 BC, tattooing was originally found on Egyptian mummies.¹² Greece, Persia, China, the Sudan, Japan and the Polynesian Islands are countries in which the custom spread.

Tattoo marks represent a form of induced chromatosis¹³ which occurs from the insertion of insoluble colouring substances into the human integument in order to imprint various characters and likenesses for enduring periods.

Needles or sharp points are used to puncture the skin after which colouring substances are introduced. The most common colouring compounds are indigo, India ink, carmine and vermilion.

Infection of tissues from the use of unsterilized points, the transmission of infectious diseases and the production of keloids have been reported as hazards of this practice.

One of the constructive forms of tattooing is the practice advocated by some prosthodontists of inscribing specific intra-oral puncture points for the purpose of controlling vertical dimension measurements. Proponents of this method recommend that the reference points should not be positioned in mobile tissue where greater vascularity stimulates diffusion of the dye, tending to produce a blot instead of a discrete point. Placing the tattoo points in the immovable tissue overlying solid bone of the alveolar process therefore is the procedure of choice. In the actual technique, the dyes used are either India ink or tantalum paste produced by mixing powdered tantalum, a noncorrosive and malleable metal, in an antiseptic solution of Listerine.

Additionally, intra-oral tattooed markings have been made for pre-extraction records, and in orthodontics tattooed marks have been advocated as a means of determining treatment progress.

The removal of tattoo marks is usually unsatisfactory. Andrews and Domonkos¹² advocate the Variot method of tattooing a 50 per cent solution of tannic acid into superficial lesions and then rubbing with silver nitrate sticks. Occasional successes

have been reported in the planing and sandpapering of superficial tattoos.

SUMMARY

Discoloration of the oral mucosa may result from pathological conditions of both local and systemic aetiology. Addisonism, vitamin B₂ deficiency, jaundice, cyanosis and polycythaemia are among the systemic diseases known to produce oral discoloration. Amalgam embeddings, tobacco stains and tattoos are examples of local conditions which produce colour changes of the oral mucosa. Colour changes may also result from endogenous conditions which include heavy metal pathoses such as bismuthism, plumbism, argyria, mercurialism and arsenism.

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University of Southern California
Dental School

CDA Associate Membership • Many dentists who retire from active practice or move abroad do not renew their licence to practise dentistry in Canada. Discontinuation of their provincial licence results in an automatic lapse of membership in the Canadian Dental Association and the cessation of CDA membership privileges such as the subscription to the *Journal of the Canadian Dental Association*, the receipt of other association mailings, eligibility to participate in CDA-sponsored group insurance programs, and receipt of a CDA membership which entitles the holder to admission at many foreign dental meetings. If you are one of these dentists, you can continue to receive these benefits by applying for associate membership in the CDA at \$8 per year. To maintain your contact with organized dentistry in Canada, write for your application form to W. G. McIntosh, Secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Current Dental Research in Canada

In the following eight annotations the Journal presents short sketches of significant dental research currently underway in Canada. Each annotation is condensed from a report presented by the respective author at the Fourth Canadian Conference on Dental Research. The conference was held October 3-5, 1966 at Clear Lake in Riding Mountain National Park, Manitoba. The Journal expresses appreciation to the conference participants who provided these annotations. The Journal also welcomes comments from readers with a view to improving the usefulness of such presentations to the profession.

Cancer

Changes in the Distribution of Intra-oral Carcinoma in Ontario

D. L. Anderson, University of Toronto

During the last 30 years the number of cases of intra-oral carcinoma registered at Ontario cancer clinics has increased at about the same rate as the population of the province. The number of cases of tongue carcinoma has increased in a similar manner. Thus, tongue involvement has remained the same percentage of intra-oral carcinoma. Data from the Medi-

cal Statistics Branch of the Ontario Department of Health permitted comparison between cases registered 15 to 30 years ago and those registered during the last four years. The results show that involvement of the floor of the mouth nearly doubled, whereas involvement of the buccal mucosa decreased by about one-half. Gingival involvement decreased and palatal carcinoma increased slightly.

The type of intra-oral carcinoma did not change. Over 95 per cent was squamous cell.

The recent group when compared to the earlier one showed a marked reduction in male predominance for carcinoma of the gingiva and buccal mucosa. One-third of the recent patients were female. The percentage of males was not reduced for tongue carcinoma, and was only a little lower for the palate and floor of the mouth.

In the recent group, the patients with involvement of the palate and floor of the mouth were younger. Forty per cent were between 40 and 60 years of age. For other intra-oral sites the age distribution of patients was unchanged. For the tongue two-thirds of the patients, and for the gingiva and buccal mucosa three-quarters were 60 years or older.

In the recent group, more patients with buccal mucosa carcinoma resided in small communities and rural areas of the province than would be expected on the basis of population, but more patients with car-

cinoma of the floor of the mouth resided in the large cities. For other intra-oral sites the distribution of cases was related more closely to population size.

Metabolism

β —N—Acetylglucosaminidase

*J. Tuba, M. Dzwiniel and C. Revell,
University of Alberta, Edmonton*

The monosaccharide, N—acetylglucosamine, is contained in the repeating unit of hyaluronic acid and in a number of glycoproteins. Several enzymes have been described which cleave terminal monosaccharide residues from glycosaminoglycans and glycoproteins. Some of these are widely distributed in various animal tissues and mucus. They include β —glucuronidase, β —galactosidase and β —N—acetylglucosaminidase. Study of these glycosidases is facilitated by the use of a chromogenic substrate. Such a substrate for β —N—acetylglucosaminidase is p—nitrophenyl —N—acetyl — β —D—glucosaminide. This substrate is not available commercially. It was necessary to synthesize the compound.

Pathology and Oral Medicine

Histogenesis and Inter-relationship of Epithelial Odontogenic Tumours

*J. D. Suouge, University of
British Columbia, Vancouver*

The parent cells of most epithelial odontogenic tumours have not yet been finally identified; hence there is no fundamental principle by which this group may be subdivided. The classification of Gorlin, Meskin and Brodey (1963) separated them empirically into two groups according to the presence or absence of connective tissue induction as a property of the epithelium of the tumour.

The nature of the adeno-ameloblastoma may offer a potential key to the basic character of the group as a whole. The resemblance of the cells of this tumour to ameloblasts was originally noted by Miles (1951), and Lucas (1957) considered that the eosinophilic material scattered through the stroma of the tumour was probably pre-enamel. Doubt was thrown upon the validity of these assumptions by Shear (1962) who considered that the histochemistry of the material related it to dentine rather than enamel. Repetition of Shear's work leads to the conclusion that this material has superficial features in common with dentine, but that it cannot be fundamentally equated with either enamel or dentine or their precursors. It shares a number of histochemical features with the more cervically situated cells of the inner enamel epithelium ('pre-ameloblasts') prior to their induction of odontoblasts and pre-dentine secretion. Thus, the adeno-ameloblastoma may possibly represent a proliferation of cells with properties approximating to this stage of odontogenesis.

Using a similar analogy, we may postulate that the remainder of the epithelial odontogenic tumours represent proliferations of cells with properties approximating to other stages seen during odontogenesis. This would link the ameloblastoma with the dental lamina; the ameloblastic fibroma with the root forming epithelium; and the odontomes with the ameloblasts prior to their acquisition of full morphogenetic potential.

Periodontics

Electron Microscopic Study of the Human Dento-epithelial Junction

M. A. Listgarten, University of Toronto

Erupted and unerupted human teeth were collected at the time of extraction and thin sections prepared for electron microscopic study. Both undemineralized and mineralized sections were examined. The epithelial cells of the cuff of erupted

teeth were attached to the tooth by hemidesmosomes and a modified basement lamina similar to that observed at the junction of epithelial membranes and the underlying connective tissue. This mode of attachment was observed in unerupted and erupted teeth, regardless of whether the attachment was located over enamel, cementum, or either of two types of cuticular structures. No cementum layer or so-called primary enamel cuticle was observed at the enamel surface of the unerupted teeth examined during this investigation.

Genetics

Dentofacial Aspects in Individuals with X Chromosome Aberrations

L. C. Melosky, University of Manitoba, Winnipeg

A total of 40 individuals with X chromosome aberrations comprised the sample for study. Fifteen had female Turner's syndrome (chromatin negative) and the remaining 25 had variants of Klinefelter's syndrome (chromatin positive). The object of the study was to determine whether individuals with different X-an euploidies present any discernible phenotypic traits which differ from the normal. Cephalometric radiography was used to assess the different parameters for this purpose: namely, angular measurements, ratios of linear measurements, palatal measurements and tooth size.

Different control groups were utilized for the several parameters investigated. The findings which were compiled and evaluated both statistically and subjectively warrant the following conclusions:

1. The maxilla and the mandible in the XO female Turner's syndrome is retrusive in relation to the cranial base as compared to normal. There is an enlargement of the angles between the anterior and posterior segments of the cranial base as compared to normal females. This may contribute to a retrusion of the dentofacial complex as related to the cranial base.

2. The maxilla and the mandible in the Klinefelter's syndrome variants are protrusive in relation to the cranial base as compared to the normal. There is a reduction in the angles between the anterior and posterior segments of the cranial base as compared to normal. This may contribute to a protrusion of the dentofacial complex as related to the cranial base.

3. Palatal height in the XO Turner or XXY Klinefelter syndrome does not differ significantly from the normal. The term high palatal vault, often used as a clinical description of Turner's syndrome, is misleading.

4. Mesiodistal tooth diameters in XO female Turner's syndrome are smaller for most classes of teeth; but there are several exceptions.

5. A disturbance in dental development referred to as taurodontism is observed in patients with Klinefelter's syndrome. The presence of this anomaly supports the assumption that genes on the X chromosome are related to dental development.

This abstract is based on a thesis completed by the author at the University of Washington.

Physiology

Laryngeal Initiation of Swallowing

A. T. Storey, University of Toronto

Electrical stimulation of the superior laryngeal nerve (innervating the larynx and epiglottis) readily initiates swallowing in most mammals. Natural stimulation of the larynx and epiglottis might be expected to initiate swallowing. To test this hypothesis a wide range of mechanical, chemical and thermal stimuli were applied to the larynx and epiglottis of decerebrate cats to determine the stimulus (or stimuli) which most readily initiates swallowing. In other decerebrate cats, water and isotonic saline solution were applied restrictively to the glottis. The time to first and subsequent swallows was monitored electromyographically and determined with a stop watch. Water was the most effective stimulus in

eliciting swallowing from the larynx. The glottis was the most effective site for the initiation of the reflex. Chemical, rather than mechanical, stimulation of water receptors is responsible for the initiation of swallowing. Laryngeal water receptors may initiate swallowing to clear the larynx of secretions wafted up from the trachea and bronchi or guard the larynx from invasion by saliva and liquid bolus residues. Swallowing appears to serve a protective, as well as an alimentary, function.

Pharmacology

Studies of an Antihistamine Principle in Human and Animal Tissues

L. E. Francis, M. Stotland and K. I. Melville, McGill University, Montreal

Since an antihistamine principle (AHP) has been found in many tissues, it was of interest to study the content in human and animal salivary glands. It was also of interest to observe changes in the AHP following drug administration. The gingiva of dogs treated with diphenylhydantoin was studied for AHP content. Compound 48/80 or reserpine was administered to guinea pigs and the AHP was investigated in the brain, lung and blood of these animals.

Radiology and Radiography

Protection of Salivary Gland Tissue from Radiation Changes

F. W. Lovely, Dalhousie University, Halifax

Xerostomia and a peculiar type of rampant decay are two sequelae of the use of ionizing rays for therapeutic control of oral and par-oral neoplasms.

Frank et al (1965) showed that radiation directed to the teeth, and not to the

salivary glands, does not produce dental defects. However, irradiation of the salivary glands during treatment of carcinoma of the hypopharynx does produce rampant dental caries, regardless of whether the teeth are inside or outside the field of radiation. This suggests that elimination of postradiation xerostomia could also eliminate postradiation caries.

Tooth extraction from jaws which have been irradiated is accompanied by great morbidity. Postradiation healing is so poor that it is usually necessary to remove all teeth prior to the radiation therapy. This is a handicap for the patient. Preradiation extraction of teeth delays the institution of therapy. Moreover, the mucosa usually atrophies, thereby complicating subsequent prosthodontic treatment.

A study was therefore designed to ascertain whether radiation changes in the parotid glands could be eliminated or minimized. The project was based on two hypotheses: (1) It was postulated that pilocarpine stimulation of the salivary cell might increase its level of differentiation and, hence, its tolerance to radiation. (2) The initial response of a cell to ionizing radiation is ionization of the water within the cell. It was postulated that this reaction might be minimized if pilocarpine stimulation could deplete the cell's water content.

Six mongrel dogs were divided into three study groups. Group 1 was designated as hyperfunctional, group 2 as hypofunctional and group 3 as control. All animals had 20 minute flow determinations from each parotid gland. This meant that each animal served as its own control.

One week after the 20 minute flow-rate of all glands was determined, the animals of all three groups were irradiated. Group 1 animals received 0.15 ml. pilocarpine per Kg. body weight two minutes prior to commencement of radiation. Group 2 animals received intravenously 0.0086 mg. atropine per Kg. body weight two minutes prior to the commencement of radiation. Group 3 animals received no medication during radiation. All animals received 1,500 roentgens delivered bilaterally to the parotid glands. This was a single dose delivered by a 250 KV con-

stant potential x-ray unit, using a setting of 15 ma. Follow-up 20 minute flow determinations were made at one and three weeks following irradiation. The parotid glands were extirpated from all animals three weeks following irradiation.

Parotid glands that were stimulated consistently showed an increase in the salivary flow following irradiation. Glands from animals in the hypofunctional and control groups had a decreased salivary flow. Histologically, the normal mucous cells in an acinar pattern were seen only in the animals whose glands

had been hyperfunctional during irradiation. The normal mucous cells were destroyed in the other two groups. The serous parenchyma of the glands from the animals in the hyperfunctional group showed much less radiation destruction than did the serous parenchyma from the glands of the other two groups.

Pilocarpine-stimulated and irradiated dog parotid glands do not suffer postradiation loss of function. These glands do not exhibit the postradiation morphological changes characteristic of unstimulated glands.

Toronto, the site of the 1967 CDA-ODA centennial convention, is the home of two universities. The Soldiers' Tower (r.) at the University of Toronto has a carillon of 42 bells. It is situated at the west end of Hart House, the centre for male student activities at this university. The Steacie Science Library at York University (below) was named in honour of a former president of the National Research Council of Canada. Be sure to visit these impressive university buildings when you are in Toronto for the CDA-ODA convention in May.



Recognition of special areas of dental practice

Specialists and Specialization Committee

The Board of Governors in 1966 directed the committee to review CDA policy on recognition of specialties. The following draft statement will be submitted as a progress report on the review, and for discussion at the annual meeting of the Board of Governors of the Canadian Dental Association May 10-13.

A. PREAMBLE

The policy of the Canadian Dental Association is to recognize, where indicated, special areas of dental practice which are based on biological, psychological and physiological approaches to prevention, diagnosis or treatment, and which involve knowledge and skills beyond those normally used in general practice.

The protection of the health and welfare of the public is the primary objective for identifying special areas of dental practice.

B. PRINCIPLES

CDA recognition of special areas of dental practice shall be governed by the following principles:

1. The area shall have importance in the protection of the health and welfare of the patient.

2. The area shall be one in which the dental practitioner has frequent need to refer patients in order to provide exceptional service to the patient.

3. The area shall represent a substantial field of practice which calls for special knowledge and skills requiring intensive study and extended clinical and laboratory experience beyond the accepted undergraduate program in order to perform services of an unusual or difficult nature.

4. The area shall be one in which public and professional need for such services shall have called into existence a sizeable number of practitioners whose knowledge and skills are readily available.

5. The area shall be one in which approved universities, dental schools, or teaching hospitals have developed a sufficient number of formal courses so that opportunities for postgraduate education and experience are available to those seeking programs of education in this special area.

6. The area shall be one in which formal postgraduate or graduate training programs of at least 22 months continuous study, leading to a diploma or advanced degree, are available.

7. The area shall be one in which there is evidence that a significant number of dentists are devoting the full time of their dental practices to the special area.

C. REVIEW

In acknowledgement of possible changes in the philosophy and practice of dentistry it will be the policy of this Association to review periodically the status of existing specialties. Any alterations must be compatible with principles approved by the Board of Governors.

National Convention

Convention Highlights

SUNDAY, MAY 14

8:15 Concert Centennial

MONDAY, MAY 15

8:30 Dental public health breakfast
 9:30 Table clinics
 10:15 Radiology—H. M. Worth, Vancouver
 12:15 Luncheon—A. W. Trueman, London, Ontario
 2:15 Grieve Memorial Lecture—D. G. Woodside, Toronto
 2:30 Projected clinics
 2:30 Scientific films
 3:15 Endodontics—J. I. Ingle, Los Angeles
 8:30 Birthday party

TUESDAY, MAY 16

9:30 Prosthodontics—D. D. Krajicek, Wadsworth, Kansas
 9:30 Group clinics
 12:15 Luncheon—D. W. Gullett, Toronto
 2:30 Scientific films
 2:30 Group clinics
 2:30 CDA presentation—H. Hillenbrand, Chicago
 4:00 RCDC Association
 9:30 Barn raising bee

WEDNESDAY, MAY 17

9:30 Oral medicine—L. W. Burket, Philadelphia
 9:30 Group clinics
 12:15 Luncheon—Arthur Porter, Toronto
 2:30 Study club seminars
 3:15 Panel on pain control—B. Geneen, S. P. Starkman, C. D. Torneck, Toronto
 8:00 Centennial ball



W. H. Feasby



K. J. Paynter

Outstanding Lineup Promised for Projected and Group Clinics

Group clinics and projected clinics have been scheduled for Monday, May 15 (2.30 p.m.), Tuesday, May 16 (9.30 a.m. and 2.30 p.m.) and Wednesday, May 17 (9.30 a.m.).

A partial list of participating clinicians and their subjects includes:

Gordon Nikiforuk, Los Angeles, critical evaluation of fluoride compounds in preventive dentistry;

Frank Martin, Toronto, simple and complex fixed and removable oral restorations;

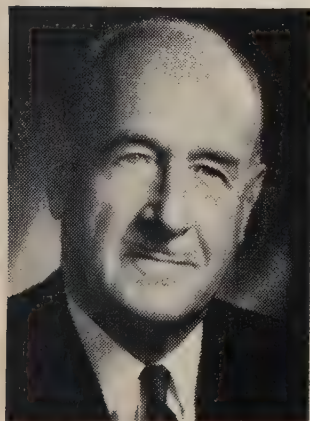
K. R. Callahan, Cleveland, Ohio, a short acting method of anaesthesia for children;

W. H. Feasby, Winnipeg, dental treatment for the handicapped child;

K. J. Paynter, Toronto, biological aspects of operative dentistry;

R. H. Roydhouse and W. R. Scott, Vancouver, new materials and methods in restorative dentistry;

R. E. Jordan, London, Ontario, silver amalgam restorations and permanent and aesthetic restoration of the cervical third;



Frank Martin



K. R. Callahan

D. W. Grenkow, Winnipeg, Class III and Class IV gold inlay restorations;

A. D. Fee, Edmonton, complete denture prosthodontics;

J. B. Heyde, Milford, Delaware, evaluation of dental materials;

Paul Vanek, Ann Arbor, Michigan, avoiding failures in endodontics;

P. T. Smylski, Toronto, considerations in surgery of mandibular malformations;

J. E. Grasso, Halifax, an approach to removable partial denture design;

A. W. Eastwood, Halifax, habit control in occlusal development;

André Schroeder, Berne, Switzerland, corticosteroids in endodontic therapy;

Harry Rosen, Montreal, integrating restorative dentistry and periodontics; and

Claude Baril, Montreal, aetiology and treatment of some abnormalities in the childhood period.

Dentistry for Children Group Lists Program

The Ontario Chapter of the Canadian Society of Dentistry for Children has announced the following program for its May 13 scientific meeting at the Royal York Hotel Roof Garden:

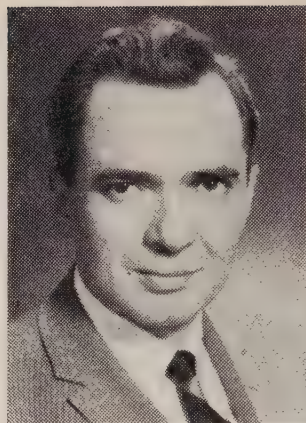
SATURDAY, MAY 13

- 8:00 Registration and coffee
- 9:00 Opening remarks—G. Burgman
- 9:15 Norman Levine, Toronto: The paediatric patient in dentistry
- 10:45 Frank Pulver, Toronto: Vital pulpotomy in deciduous teeth
- 11:45 Business meeting—Ontario Chapter CSDC
- 12:15 Luncheon—W. H. Feasby, Winnipeg: The direction of paedodontics
- 2:00 R. L. Scott, Brantford, Ontario: Predicting spacing or crowding
- 3:30 B. Hemrend, Toronto: Growth and development — its clinical application

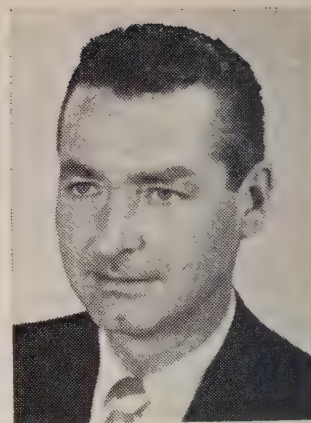
Further information may be obtained from Norman Levine, 200 St. Clair Avenue West, Toronto 7, Ontario.

May 15 DPH Breakfast Locale Switched

The Ontario Dental Public Health Council has announced that its 1967 breakfast meeting at 8.30 a.m. on Monday May 15 will be held in the Canadian Room (instead of the Ontario Room) of the Royal York Hotel, Toronto. Tickets (price \$2) may be obtained in advance from the On-



D. W. Grenkow



R. E. Jordan

tario Dental Association (230 St. George Street, Toronto 5) or at the door of the Canadian Room.

Academy of Paedodontics Sets May 16 Meeting

The Canadian Academy of Paedodontics will hold a scientific meeting May 16 in the New Brunswick Room of the Royal York Hotel. The following program is scheduled:

TUESDAY, MAY 16

- 9:30 Business meeting
- 2:00 Gordon Nikiforuk, Los Angeles: Highlights in paediatric dentistry
- 3:30 H. C. Parrott, Woodstock, Ontario: Rapid expansion of the mid palatal suture
- 4:00 C. R. Castaldi, Winnipeg: Multiple topical fluoride therapy

Further information may be obtained from Norman Levine, 200 St. Clair Avenue West, Toronto 7, Ontario.

Ladies' Entertainment: Food, Fun and Fashion for Feminine Fancy

Events for ladies begin on Sunday May 14 with the CONCERT CENTENNIAL at 8.15 p.m., followed by a PRESIDENTS' RECEPTION. Both events take place at the Royal York Hotel.

A ladies' GOURMET BREAKFAST — 'UN PETIT DEJEUNER PAS COMME LES AUTRES' — will be held on Monday, May 15, 8.45 a.m. at Eaton's Georgian Room. Bus transportation will be provided from the main entrance of the Royal York Hotel.

Tours of the City Hall, Toronto Stock Exchange and other places of interest have been arranged for Monday morning and afternoon. Further information may be obtained at the registration desk or ladies' hospitality room.

An 1867-1967 BIRTHDAY PARTY, featuring a birthday cake and the selection of a Centennial Queen, will be held in the Royal York Hotel at 8.30 p.m. on Monday May 15.

COCKTAILS AND LUNCHEON — CIRCA 1867 at the O'Keefe Centre are slated for Tuesday May 16 at 11.30 a.m., to be followed by a tour of the O'Keefe Centre. Highlighting this event will be a display of antiques and art as well as music. Later that night, there will be a BARN RAISING BEE complete with square dancing and ragtime piano music in the Royal York Hotel at 9.30 p.m.

COCKTAILS, LUNCH and the 'EEDDEE' FASHION SHOW presented by the Ontario Fashion Institute are scheduled for Wednesday May 17 at the Inn on the Park. Bus transportation will depart from the Royal York main entrance at 11.30 a.m.

Wednesday night is set aside for the CENTENNIAL BALL at the Royal York Hotel. Preceded by a social hour at 7.00 p.m., the ball will begin at 8.00 p.m.

The ladies' convention fee of \$12 includes the Sunday, Monday and Tuesday evening entertainment, ladies' breakfast on Monday, Tuesday and Wednesday luncheons and Wednesday fashion show. Tickets for some events are limited; early registration is therefore recommended to avoid disappointment.

The Association

Draft New Policy on Specialties

The Committee on Specialists and Specialization, at its meeting on March 3, took the first step in drafting a new policy on specialty areas of dental practice. The draft statement is reproduced elsewhere in this issue of the Journal and will be submitted for discussion at the annual meeting of the Board of Governors in Toronto next month.

Council on Education Meets

The CDA Council on Education, at its meeting of March 8-9, gave general approval to the national certification program for dental assistants recommended by the Auxiliary Services Committee (p. 163, March Journal). The proposal now goes to the Board of Governors meeting in Toronto next month.

The Council's crowded agenda covered a wide range of topics including the approval of three hospital dental internships, recommendations concerning the National Dental Examining Board of Canada, minimum curriculum requirements for dental assistants, CDA War Memorial Award Competition, proposed formation of a Canadian Association of Dental Faculties, examination of foreign dentists, recognition of specialist training programs and special areas of dental practice, accreditation of dental schools, and continuing education.

The council meeting was preceded by a two day conference of persons concerned with dental libraries in Canada.

K. L. Croft, Executive Director, Ontario Federation of Construction Associations

Kenneth L. Croft, deputy secretary of the Canadian Dental Association, was appointed executive director, Ontario Federation of Construction Associations, on April 1. Mr. Croft left the CDA after serving as deputy secretary since October 1957.



K. L. Croft

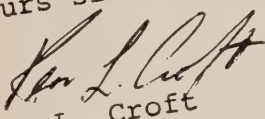
Gerald Campbell

In his nine and a half years on the CDA staff, Mr. Croft was concerned with the

Dr. F.H. Compton,
Editor,
Journal of the Canadian
Dental Association.

It has been my pleasure to meet and to work with many dentists from all across Canada since I joined the CDA staff in 1957. As I take my leave to move to another association, I wish to take this means of expressing thanks and appreciation to all who have made my stay with CDA such a pleasant one. Best wishes for continuing success.

Yours sincerely,


Ken L. Croft

activities of all councils and committees and the Board of Governors, national conventions, public information, fluoridation (as CDA representative to the National Fluoridation Committee of the Health League of Canada), science fairs (as CDA representative to the Youth Science Foundation), and dental education (as secretary of the Canadian Fund for Dental Education).

A graduate of the University of Western Ontario, Mr. Croft held several responsible positions in the business world before he joined the CDA.

News from Parliament

Pay Rates for Medical and Dental Officers in Armed Forces Compared

The February 13 issue of *Hansard* contains the following exchange between the Hon. Marcel Lambert (PC-Edmonton West) and the Hon. Léo Cadieux (Associate Minister of National Defence) concerning salaries of dentists and physicians in Canada's armed forces:

Mr. Lambert:

1. With the introduction of the revised armed service pay scale effective October 1, 1966, what is (a) the basic, (b) the total rate of pay and allowances of a dental officer during each of the first five years of service?

2. What are the comparable rates of pay and allowances for a medical officer?

3. What are the reasons for the differences, if any, taking into account the cost and extent of training and of respective responsibilities in the course of duty?

4. Have protests been received or representations been made within the services with regard to any differences in the pay scale and, if so (a) what consideration has been given to such representations, (b) with what result?

Mr. Cadieux:

1. The revised Canadian Forces pay, effective 1 October 1966, for dental and medical officers is at consolidated rates. Dental officers' allowances and medical officers' allowances were abolished on 1 October 1966. The rates for dental officers in the rank of captain during each of the first five years are: 1st year, \$10,572; 2nd year, \$10,980; 3rd year, \$11,388; 4th year, \$11,844; 5th year, \$12,300.

2. The comparable rates for medical officers in the rank of captain during each of the first five years are: 1st year, \$8,328; 2nd year, \$8,736; 3rd year, \$9,144; 4th year, \$12,504; 5th year, \$13,080. (Note: The majority of medical officers who stay in the Canadian Forces are promoted to major after four years and receive an annual rate of \$14,160).

3. The salary scales for dental and medical officers in the civil service were taken into consideration when the above rates for dental officers and medical officers in the Canadian Forces were established.

4. Protests have been received from junior medical officers concerning rates of pay for the first three years of service. Consideration is presently being given to revising the rates paid during the first three years of service for medical officers.

International Items

Toronto Dentist Participates in Cairo, Egypt, Study

A. T. Storey of the Toronto Faculty of Dentistry was the Canadian member of an American-Canadian dental scientific group that visited Egypt December 10-30 last year to examine the royal mummies in the Cairo Museum. The visitors took lateral head radiographs of mummies and studied ancient embalming practices.

Predict New Look in US Dental Schools

Over the next two or three years, many US dental schools will undergo extensive rebuilding or renovation aimed at increasing student capacity. With the help of grants from the US government, schools now operating in overcrowded, outmoded, and ill-equipped buildings will modernize their teaching facilities, making it possible to produce increased numbers of dentists in the years ahead.

As a beginning, 17 of the country's dental schools are or soon will be modernizing or enlarging. In addition, two universities are building entirely new dental schools where none existed before.

According to a US Public Health Service spokesman, recent grant awards to dental schools at the University of Puerto Rico and the University of South Carolina increased to 19 the number of dental schools thus far receiving federal assistance for their building programs. Three of the 19 schools have practically completed their scheduled construction—the dental schools at the University of the Pacific (San Francisco), University of Pittsburgh, and University of California at Los Angeles. The first phase of construction scheduled for the dental school at the University of Pennsylvania is already completed and building has begun at the dental school of the University of Nebraska.

At the University of Connecticut, a completely new dental school—the first in Connecticut — will be built with grant funds. The University of Florida and the

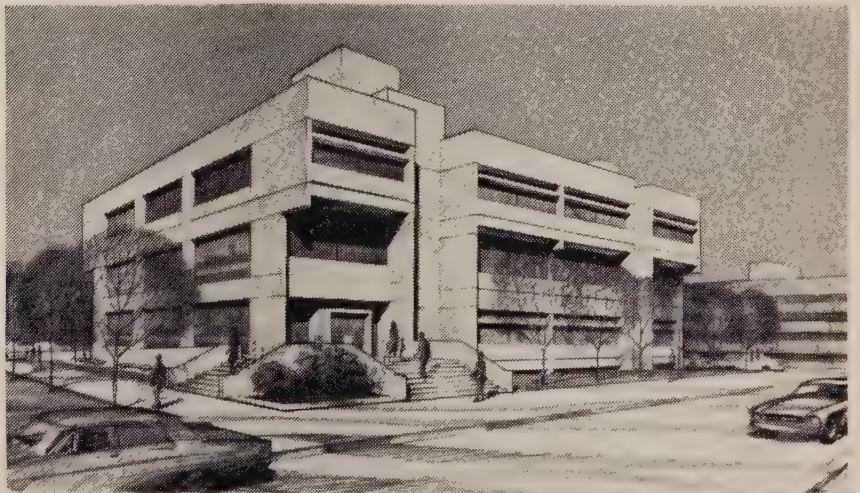
Medical College of Georgia are planning to build new dental schools also. Further rebuilding or renovation is scheduled at Western Reserve University, University of Michigan, University of Pittsburgh, University of Nebraska, University of North Carolina, Georgetown University, Loyola University of Chicago, University of Missouri at Kansas City, Emory University, University of Puerto Rico, University of Louisville, and the University of Maryland.

Since the program began, 25 dental schools have applied for \$87.3 million in construction grants. Of these requests, \$62 million in grants have been approved and funded. The remaining backlog of grant applications in the amount of \$25.3 million will probably be approved before the end of this year.

New Building for Boston Graduate Dentistry School

Construction began in April 1967 of a new four-level building for the Boston University School of Graduate Dentistry. The only school of its kind in the world, the Boston University School of Graduate Dentistry offers two and three year programs leading to the degree of master of science in dentistry, preparing dentists for careers in teaching, research, and the practice of a dental specialty.

An integral part of the Boston University Medical Centre, the School of Graduate Dentistry offers advanced training in oral surgery, orthodontics, periodontics,



New four-level building under construction for the Boston University School of Graduate Dentistry.

paedodontics, oral pathology, endodontics, prosthodontics and preventive dentistry.

New ADA Headquarters Building Almost Fully Occupied

Approximately one year after opening its new 23-storey headquarters in Chicago, the American Dental Association has announced that virtually all available tenant facilities in the building have been rented.

More than 99 per cent of the building's 12 floors of rentable space were leased as of January 15. Nearly 85 per cent of that area was already occupied by tenants. A major reason for the rapid rental of office space is the building's locale just off Michigan Avenue's 'Magnificent Mile,' and its pleasing architectural design and interior décor.

At present, 61 tenants rent offices in the ADA building, including 10 national or international dental organizations. The American Dental Association itself uses seven floors of the building for administrative and research activities. The first floor lobby, the second floor complex which includes dining-rooms and auditorium facilities, and two other floors devoted to maintenance and heating complete the 23-storey structure.

Philadelphia's Temple University Offers Postgraduate Courses

Beginning in September 1968, Temple University School of Dentistry will offer postgraduate courses leading to specialty certificates in endodontics, oral surgery, orthodontics, partial prosthodontics, paedodontics and periodontics. Further information may be obtained from G. E. Green, Secretary, Graduate Committee, Temple University School of Dentistry, 3223 North Broad Street, Philadelphia, Pennsylvania 19140, USA.

Chicago PR Conference for Health and Welfare Organizations May 14-16

Representatives of Canadian health and welfare organizations have been invited

to attend the National Public Relations Institute for Non-Profit Organizations at the Palmer House in Chicago May 14-16. The meeting's general sessions will cover such topics as ideas: how they are bought and sold; tomorrow's social institutions: roads and communications; cartoonists' view of public relations; government-voluntary organizations: public relations responsibilities and opportunities; communicating with youth; and tomorrow's public relations practitioner. Other topics will cover a wide variety of techniques and media used in public relations. Delegates should send the \$25 registration fee, which includes the Institute luncheon on May 16, to the National Public Relations Council, 257 Park Avenue South, New York, NY 10010, USA.

Canadians Invited to Barcelona Orthodontic Congress May 22-26

Canadian dentists have been invited to attend the 13th congress of the Spanish Orthodontic Society May 22-26 at Sitges (Barcelona), Spain. The scientific theme of the meeting will be treatment of Class II Division 1 malocclusion in the mixed dentition. B. F. Dewel of Evanston, Illinois, will be a guest of honour.

Further information and registration forms may be obtained from Juan Carol-Murillo, Congress President, Calle Provenza 264, Barcelona 8, Spain.

Berkshire Conference Slated for June 11-15

Tufts University 17th Annual Berkshire Conference in periodontology and oral pathology will be held June 11-15 in Lenox, Massachusetts. Themes of the conference are "plastic surgery for the periodontium" and "occlusion." Lectures include Henry Beyron of Stockholm, Sweden, J. L. Bernier, Marvin Goldstein, C. L. Nabers, Sydney Silverman and Melvin White.

The conference is open to general practitioners and dentists in specialized practice. Further information can be obtained by writing Tufts Berkshire Conference, Tufts University School of Dental Medi-

cine, 136 Harrison Avenue, Boston Massachusetts 02111, USA.

Switzerland Accepts Dental Hygienists

Switzerland's dentists have given the nod to dental hygienists. After a five year pilot study, the Swiss Dental Society has accepted the profession of dental hygiene and the country's 22 cantons may now establish licensing requirements for hygienists.

Professor H. R. Mühlemann of the Dental Institute, University of Zurich, and R. H. Boitel, a Zurich practitioner, initiated and sustained the pilot program with assistance from the American Dental Hygienists Association. Swiss dentists, though initially opposed to the idea of employing dental hygienists in private practice, changed their minds as the experiment progressed.

Success of the program may have been a factor in a recent Belgian decision for a dental hygiene program. Italian dentists have also expressed interest in possible development of a future dental hygiene program.

ORCA Congress at Würzburg, Germany, July 17-19

The European Organization for Caries and Fluorine Research (ORCA) will hold its annual scientific congress at Würzburg, Germany, July 17-19. Principal theme of the meeting will be a discussion on dental plaques. Further information may be obtained from the ORCA Secretariat, Pleichertorstrasse 32, 8700 Würzburg, Germany.

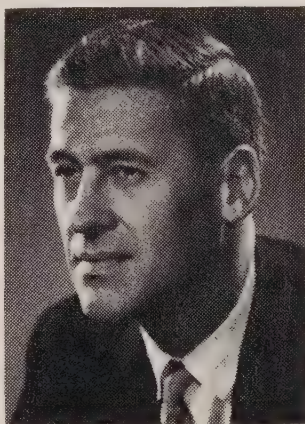
ORCA will also sponsor a symposium on fluorides in relation to dental health at the FDI Paris World Dental Congress. This symposium is slated for Tuesday afternoon, July 11. Subject matter to be covered includes: the mechanism of action of fluorides in reducing caries incidence; fluoride metabolism with special reference to safety; relation between water fluoridation and dental caries experience; the value in caries prevention of other methods of increasing fluoride ingestion,

apart from fluoridated water; and the value in caries prevention of methods for applying fluorides topically to the teeth. Further information concerning the ORCA symposium at the FDI World Congress may be obtained from H. R. Held, 18 Passage du Terraillet, CH 1204 Geneva, Switzerland.

Dental Organizations

Dr. Staples Heads Montreal Dental Club

P. C. Staples was installed as president of the Montreal Dental Club when that organization held its annual meeting January 23. He succeeds R. S. Edmison.



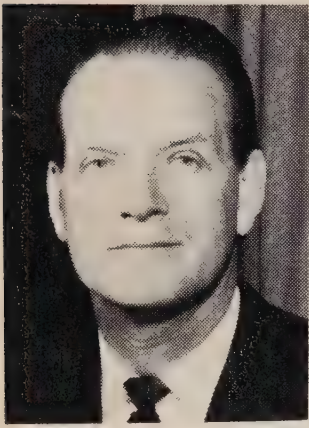
P. C. Staples

Other members of the executive are: G. D. Armstrong, vice-president; E. C. Hickey, secretary; N. I. Hanna, treasurer; and A. R. Ramsay, historian archivist. Named as directors were J. T. Elo, F. E. Shamy, C. A. Casey, R. W. Faith, M. Herbert and H. J. Smart.

Manitoba Assn. Institutes Program to Cut Tooth Decay

The Manitoba Dental Association is pioneering on the North American continent by offering special fluoride treatments to the public, according to a report published in the *Winnipeg Tribune* February 26, 1967.

As a result of distributing treatment kits and special instruction on fluoride



J. D. Purves (l.) of Toronto was elected president of the Royal College of Dental Surgeons of Ontario on February 20. He succeeds J. P. Coupland, Ottawa. Born in Saskatoon, Dr. Purves graduated from the Faculty of Dentistry, University of Toronto, in 1939. Dr. Purves serves on the teaching staff of the Faculty of Dentistry at the University of Toronto. He is also a member of the Canadian Dental Association's Board of Governors and past chairman of its Council on Journalism. H. M. Jolley (r.), Toronto, was elected vice-president of the RCDS.



therapy to Manitoba dentists, at least 150 have indicated an interest in the program which consists of three phases. The first phase involves drinking fluoridated water (now available to 90 per cent of Manitobans) which eliminates 65 per cent of potential tooth decay. The second phase, along with phase three, reduces the remaining decay potential by 25 per cent, according to C. R. Castaldi, professor of operative dentistry at the University of Manitoba. This part of the program involves the application of a fluoride polish and cleaning paste by a dentist every six months. Phase three consists of painting a special fluoride solution to the teeth every six months, which again takes care of 25 per cent of the remaining tooth decay in a given study group.

Revised Constitution Ahead for BC Association

A committee of the British Columbia Dental Association is developing a new constitution designed to strengthen the ties between the provincial association and local dental societies in British Columbia. Writing in the February 1967 *BCDA News Bulletin*, R. E. D. Munn, Vancouver, says that his group "utilized the fundamental premise . . . that the voluntary aspect of dentistry be organized and co-ordinated from a local to a provincial to a federal level. The licensing and disciplining section of dentistry should enforce the dental act." He points out that the number of licensed dentists in BC makes it possible to have a democratic organization without an unwieldy board of governors.

Regional Conventions

BCDA Meeting Set for May 24-27

Outstanding essayists and clinicians will address BC convention delegates when they assemble for the 51st annual meeting of the British Columbia Dental Association at the Hotel Vancouver May 24-27. The line-up includes H. J. Bartelstone and Robert Gottsegen, both of New York; J. I. Ingle, dean, School of Dentistry, University of Southern California; and S. F. Dachi, from the University of Kentucky. Convention Chairman D. B. McDonald promises additional attractions in the form of table clinics and a hobby display. And, of course, there will be a full round of social activities and entertainment.

1967-68 Calendar of Canadian Meetings in This Issue

In the Announcements section of this issue the Journal publishes a list of Canadian dental meetings scheduled for 1967 and 1968.

Royal Canadian Dental Corps

Brig. Kearney Inspects Ontario Clinics, Attends Chicago Convention

Brig. B. P. Kearney, Director General of Dental Services, inspected Royal Canadian Dental Corps clinics at the Canadian Forces Base Borden and at Clinton,

London, Toronto, Trenton and Kingston, Ontario, during February.

Accompanied by Lt.-Col. W. R. Thompson, Brig. Kearney attended the Chicago Mid-Winter Dental Convention February 5 - 8.

DPH Officer Collaborates with DNH&W Dental Survey Subcommittee

Maj. J. V. P. Chatwin is collaborating with an advisory group of the Department of National Health and Welfare which is adapting the Canadian Dental Health Index to a system advocated by the World Health Organization. This advisory group (R. M. Grainger, Toronto, chairman; Frank McCombie, Victoria; W. C. King, Halifax; T. L. Marsh and R. A. Connor, Ottawa) is the Subcommittee on Dental Statistics and Evaluation which reports to the Advisory Committee on Dental and Oral Health to the Minister of National Health and Welfare.

At a recent meeting of the subcommittee, Maj. Chatwin described test trials of a new WHO mark-sense dental health survey punch card. The trials were conducted by RCDC personnel in two provinces. The Corps will furnish the subcommittee with results of a recent recruit survey conducted by RCDC teams.

Six Officers Take Casualty Care Training

Lieutenant-Colonels D. H. Hillier and G. E. Windsor, and Majors W. R. Collier, D. H. Skinner, T. D. Cobb, and D. J. Carmichael attended an Officers Casualty Care and Clinical Course at the Royal Canadian Dental Corps School, Canadian Forces Base Borden, February 13-17.

Economics

BC Denture Clinics Successful

Denture clinics operated by the dental profession in British Columbia recorded an overall profit during a 10 month period in 1966. Budgetary figures for the clinics include amounts for advertising costs. Advertisements placed in weekend news-

papers proved far more effective than radio advertising. The latter will therefore be discontinued.

It has been suggested "that overflow patients from the dental faculty at the University of British Columbia be channeled into the clinics. The dentists of BC are also being asked to refer to the clinics patients who are unable to pay the usual fees for dentures."

Six Companies Can Offer Dental Insurance in Canada

At latest count six commercial insurance companies have indicated that they are prepared to write dental prepayment plans in Canada. The list includes Confederation, Dominion Life, Great West, London Life, Metropolitan and Travelers companies. Dominion Life's dental insurance is written only in conjunction with other insurance for which the total group premium is at least \$300 a month. Great West plans are restricted to organizations which employ 50 or more persons, and London Life plans require a minimum of 25. None of these companies write dental insurance for individuals.

Broken Appointments Problem for St. Louis Labour Health Institute

Broken dental appointments are a constant problem for the St. Louis (Missouri) Labour Health Institute. The institute's 1966 annual report states: "This is costly both in time and in wasted manpower. One of our efforts which is proving to be successful in reducing broken appointments is to send a reminder to the individual's shop steward three days in advance. Another has been a new dental appointment reminder folder which is given to each patient listing all appointments, as well as the dentist's hours. A more drastic regulation being put into effect cancels all remaining appointments (except emergency) for six months when an appointment is broken or cancelled without justification."

The report lists 39,571 patient visits and 3,984 broken appointments in a 12 month period ending June 30, 1966.

The institute was established in 1945 by Local 688 of the International Teamsters' Union. It offers a comprehensive medical and dental program for members and their dependants. Dental service is rendered in the institute's clinic.

US Public Health Service Grants \$57,000 for Dental Attitude Study

J. W. Howitt of the Department of Paedodontics, Eastman Dental Centre, Rochester, has received a Public Health Service grant of \$57,000 for a study of dental attitude formation and preventive care utilization.

The US National Community Health Committee, in recommending the two year study, recognized the need to encourage people to make preventive care visits to dentists, consisting of routine examinations, prophylaxis and fluoride application.

Dr. Howitt's study will attempt to identify further those factors which stop a patient from making preventive dental treatment visits, and to establish means to intercept or correct these negative factors.

Dentists Participate in Health Evaluation at ADA Convention

Chest x-rays taken during the November 1966 Dallas ADA annual session revealed one probable malignancy, one suspected aortic aneurysm and 18 possible tuberculosis cases, an ADA spokesman has revealed. He said that 1,322 dentists participated in the health program, representing approximately 22 per cent of all dentists who registered at the meeting.

Preliminary tabulations show that 67 dentists had urinalysis results pointing to abnormal changes; 340 had elevated blood sugar; 161 had impacted teeth; 396 had moderate periodontic disease and 56 had severe periodontic disease; 99 had radio-lucent areas interpreted as a cyst or granuloma; 29 had gross caries; 84 had suspiciously elevated pressure in one or both eyes in the test for glaucoma; and 356 had questionable electrocardiograms.

Of 1,248 dentists who answered a ques-

tionnaire on the use of tobacco, 471 admitted using it in one form or another. Of the 777 who did not use tobacco, 316 said they had used it at one time but discontinued the habit in recent years.

Research

Leukaemia Drug Causes Oral Cancers to 'Melt' Away

A drug used to treat child leukaemia patients sometimes causes oral cancers "to melt away," a physician from University Hospitals at Cleveland, Ohio, has reported. In an article in the January issue of *Dental Abstracts*, C. L. Kiehn explained that the leukaemia drug — methotrexate — has become a routine procedure for all oral cancer surgical patients at University Hospitals. He emphasized that use of the drug did not increase the long-term survival rate of the 31 oral cancer patients treated. Survival rate in the 31 patients was 44 per cent in less than three years, which approximates the usual 30 to 40 per cent survival rate of patients after surgery. However, 78 per cent of the 31 patients survived for the first two years. Recurrence of the oral cancer was thus postponed beyond the usual average of 18 months.

"Although the tumour sometimes seems to have literally melted away, we don't feel justified in assuming that it is gone," Doctor Kiehn said. "More frequently there remain tumour cells that may appear distorted but whose ultimate viability cannot be determined. We also have to consider that the local area may be a centre of multicentric activity, so that an obliterative effect on one site may not be totally effective on others. There is also the possibility that the cervical lymph nodes will remain tumourous because of inadequate drug dosage."

He explained that all 31 patients received 350 to 500 mg. of methotrexate for seven to 10 days. Infusion was made in the external carotid artery. All of the patients responded. Tumours diminished in size; some healed and, in all patients, pain was reduced. In 10 patients, comparison of post-infusion biopsy specimens

and tissue removed two to six weeks later in surgery showed the tumour had disappeared from the local site.

Best results were obtained with small tumours limited to the lateral surface of the oral cavity and previously untreated. Methotrexate was less effective in patients with metastases to the cervical nodes or with widespread lesions on the floor of the mouth, in the tonsillopalatine region, at the base of the tongue, or in the region of the lateral pharynx.

Dr. Kiehn added: "The common denominator of effectiveness is the accuracy of the blood supply as a vehicle for drug distribution. Previous irradiation or surgery, nonsegmented tumour location, ulceration, or dispersed cervical nodes do not permit a useful drug concentration in the tumour cells."

The article, entitled "Drug Infuses Hope in Oral Cancer," originally appeared in the August 12, 1966 issue of *Medical World News*.

Porcelain Teeth Chemically Bonded to Plastic Denture Base

Porcelain teeth, which are of fused silicate material, can now be successfully bonded to cold- and heat-cured acrylic resin denture base by the use of a commercial silane coupling agent. This result has been reported by three American Dental Association research associates whose work was supported by the US National Institute of Dental Research and by other US governmental dental services.

Before this application was used, there was little or no adherence between porcelain teeth and plastic denture base. Therefore, it was necessary to use gold pins to lock teeth mechanically into the plastic base. The new technique is expected to cut manufacturing costs substantially.

Because porcelain expands and contracts so much less than plastic when the denture is heated or cooled, a crevice opens up between the porcelain teeth and the plastic base when a denture at room temperature is placed in the mouth. Food and bacteria flow into the crevice between the teeth and the plastic and ferment causing 'denture breath,' as well as

discoloration. In contrast, silane-treated teeth bond so firmly to the denture base that no crevice develops when the temperature of the denture is changed, and breakage is reduced significantly.

Fluoridation

Voters Foiled; Get Fluorides Anyway

Residents of Ponoka, a town of 4,000 situated 40 miles south of Edmonton, voted against fluoridation last fall but will get fluoridated water anyway. Tests of water from a new well to replace the town's current supply show it is high in natural fluorides.

Charlottetown Joins, Kingston Leaves Fluoridation Ranks

Charlottetown intends to fluoridate its water. A slim majority approved the measure February 8 in the first fluoridation plebiscite of the current centennial year. By their action the voters reversed a 1960 plebiscite when fluoridation lost by a scant 27 votes. The capital of Prince Edward Island, Charlottetown with more than 18,000 residents is the first municipality in the island province to adopt fluoridation.

But in Ontario fluoride will still have to come out of the Kingston, Ontario, water. The city's water has been fluoridated since March of last year but a narrow majority voted for its removal at the December 5 municipal election. A binding recount by Frontenac County Judge Alan Campbell reduced the difference between proponents and opponents to 178 votes but failed to reverse the decision of last December.

Awards and Honours

Vancouver paedodontist **Max Nacht** was honoured by the Council of the College of Dental Surgeons of British Columbia at a reception and dinner on January 8. Dr.

Nacht recently retired from the post of College registrar, a position which he held for the past five years.

Deaths

Bagshaw, Daniel Judson. Toronto. Royal College of Dental Surgeons of Ontario, 1904. 9-2-67. Survived by Marguerite (wife) and Mrs. G. H. Parke-Taylor, Mrs. E. B. Fish, Mrs. A. N. Stone and Marguerite Bagshaw (daughters).

Charpentier, Joseph James. 73. Montreal. Laval University, 1919. 3-2-67. Survived by Margaret (wife) and Mrs. J. E. Stodola (daughter).

Cheney, Hugh Lough. 81. Ottawa, Royal College of Dental Surgeons of Ontario, 1908. 28-1-67. Survived by Elizabeth (wife).

Harris, Herman Leander. 58. London,

Ontario. McGill University, 1934. 14-2-67. Survived by Margaret (wife).

Kingman, George. 72. Toronto. University of Toronto, 1929. 12-2-67. Survived by Winnifred (wife), Jean (daughter) and Kenneth, Douglas and Donald (sons).

Levy, Charles David. 59. University of Toronto, 1931. 11-2-67. Survived by Mrs. C. D. Levy (wife).

Miles, Stanley F. 67. Victoria, British Columbia. North Pacific College, University of Oregon, 1923. 21-1-67. Survived by Betty (wife) and Mrs. William Bishop and Mrs. David Whittingham (daughters).

Parrott, John Ross. 71. Midland, Ontario. Royal College of Dental Surgeons of Ontario, 1922. 22-2-67. Survived by Dr. Fraser Parrott of Galt (son).

Swetnam, William Stanley. 68. Montreal. McGill University, 1924. 21-2-67. Associate member CDA.

in memoriam

Stanley Frederick Miles

Dr. S. F. Miles of Victoria, British Columbia, died on January 21, 1967, at the age of 67. He was born in Victoria in 1899.

A 1923 graduate of North Pacific Dental College, University of Oregon, Dr. Miles was an active member of the alumni association of that college. He was a past president of the Victoria Dental Society and a member of the Council of the College of Dental Surgeons of British Columbia. He was a life member of the Royal Jubilee Hospital in Victoria and a member of the Canadian Dental Association, the Northwest Academy of Dental

Medicine, the International Association of Oral Surgeons and the American Dental Society of Anesthesiology. Dr. Miles was also chief of the Dental Department at St. Joseph's Hospital in Victoria. He had done postgraduate work in oral surgery at McGill University in Montreal and Northwestern University in Chicago. For 12 years he administered dental services for children at Queen Alexandra Solarium at Mill Bay, British Columbia.

Dr. Miles is survived by his wife, Betty, and two daughters, Mrs. William Bishop of Portland and Mrs. David Whittingham of Victoria.

les actualités dentaires

Congrès national

Principaux événements du congrès

DIMANCHE, 14 MAI

8h15 Concert du Centenaire

LUNDI, 15 MAI

8h30 Petit déjeuner de l'hygiène dentaire publique

9h30 Cliniques de table

10h15 Radiologie—H. M. Worth, Vancouver

12h15 Déjeuner—A. W. Trueman, London, Ontario

2h15 Conférence du Mémorial Grieve — D. G. Woodside, Toronto

2h30 Cliniques sur film

2h30 Films scientifiques

3h15 Endodontie—J. I. Ingle, Los Angeles

8h30 Soirée d'anniversaire

MARDI, 16 MAI

9h30 Prosthodontie—D. D. Krajicek, Wadsworth, Kansas

9h30 Cliniques de groupe

12h15 Déjeuner—D. W. Gullett, Toronto

2h30 Films scientifiques

2h30 Cliniques de groupe

2h30 Adresse à l'ADC — H. Hillenbrand, Chicago

4h00 Association du CDRC

9h30 "Barn raising bee"

MERCREDI, 17 MAI

9h30 Médecine buccale — L. W. Burket, Philadelphie

9h30 Cliniques de groupe

12h15 Déjeuner—Arthur Porter, Toronto

2h30 Séminaires

3h15 Discussion d'experts sur la maîtrise de la douleur—B. Geneen, S. P. Starkman, C. D. Torneck, Toronto

8h00 Bal du Centenaire

Les inscriptions et réservations doivent être effectuées tôt

Le président du congrès, R. G. Ellis, recommande aux participants de s'inscrire sans tarder, car le nombre de places pour certains spectacles est limité. On trouvera dans le numéro de mars du Journal une formule d'inscription qui doit être envoyée avec chèque, au Congrès ADC-ODA, 230 St. George Street, Toronto 5, Ontario.

Les participants doivent également effectuer le plus tôt possible leurs réservations à un hôtel torontois de leur choix, car il n'existe pas de comité pour le logement.

Conférences et cliniques exceptionnelles pour le congrès

Des cliniques sur film et des cliniques réservées sont prévues pour les lundi 15 mai (2h30 p.m.), mardi 16 mai (9h30 a.m. et 2h30 p.m.) et mercredi 17 mai (9h30 a.m.).

Voici une liste partielle des cliniciens qui y participeront, ainsi que des sujets traités;

Gordon Nikiforuk, de Los Angeles, évaluation des fluorures en dentisterie préventive;

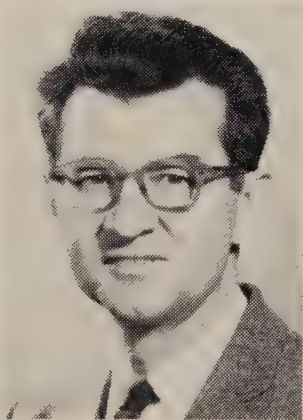
Frank Martin, de Toronto, restaurations buccales simples et complexes, fixes et amovibles;

K. R. Callahan, de Cleveland, Ohio, une méthode d'anesthésie à effet rapide pour les enfants;

W. H. Feasby, de Winnipeg, le traitement dentaire des enfants handicapés;

K. J. Paynter, de Toronto, aspects biologiques de la dentisterie opératoire;

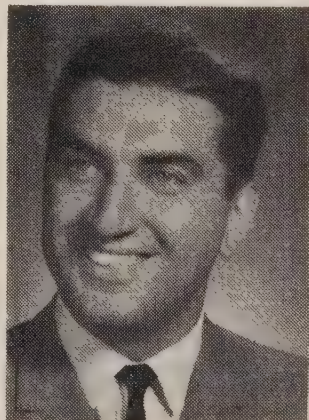
Gordon Nikiforuk



André Schroeder



Harry Rosen



Geraldine Carpenter

R. H. Roydhouse et W. R. Scott, de Vancouver, nouveaux matériaux et nouvelles méthodes en dentisterie restaurative;

R. E. Jordan, de London, Ontario, restaurations avec amalgame d'argent et restauration permanente et esthétique du tiers gingival;

D. W. Grenkow, de Winnipeg, restaurations avec incrustations en or de classe III et de classe IV;

A. D. Fee, d'Edmonton, prothèses complètes;

J. B. Heyde, de Milford, Delaware, matériaux dentaires;

Paul Vanek, d'Ann Arbor, Michigan, comment éviter les échecs en endodontie;

P. T. Smylski, de Toronto, chirurgie buccale;

J. E. Grasso, de Halifax, prothèses partielles;

A. W. Eastwood, de Halifax, habitudes et occlusion;

André Schroeder, de Berne, Suisse, les cortico-stéroïdes dans le traitement endodontique;

Harry Rosen, de Montréal, comment intégrer la dentisterie restaurative et la périodontie;

Claude Baril, de Montréal, étiologie et traitement de quelques irrégularités durant l'enfance.

Programme de la Société canadienne de pédodontie

Le Chapitre ontarien de la Société canadienne de pédodontie publie le programme de sa réunion scientifique du 13 mai au Roof Garden de l'hôtel Royal York.

SAMEDI, 13 mai

- 8h00 Inscription et café
- 9h00 Remarques préliminaires—G. Burgman
- 9h15 Norman Levine, de Toronto: L'enfant en dentisterie
- 10h45 Frank Pulver, de Toronto: Pulpotomie vitale des dents temporaires
- 11h45 Affaires de la Société — Chapitre ontarien de la CSDC
- 12h15 Déjeuner—W. H. Feasby, de Winnipeg; Evolution de la pédodontie
- 2h00 R. L. Scott, de Brantford, Ontario: Comment prévoir l'espacement ou le chevauchement
- 3h30 B. Herarend, de Toronto: Croissance et développement—application clinique

Pour tous renseignements, s'adresser à Norman Levine, 200 St. Clair Avenue West, Toronto 7, Ontario.

Programme de la réunion de l'Académie de pédodontie

L'Académie canadienne de pédodontie tiendra une réunion scientifique le 16 mai, dans la New Brunswick Room de l'hôtel Royal York, dont voici le programme:

MARDI, 16 mai

- 9h30 Affaires de l'Académie
- 2h00 Gordon Nikiforuk, de Los Angeles: Points saillants en pédodontie
- 3h30 H. C. Parrott, de Woodstock, Ontario: Expansion de la suture palatine
- 4h30 C. R. Castaldi, de Winnipeg: Les applications topiques de fluor

Pour tous renseignements, s'adresser à Norman Levine, 200 St. Clair Avenue West, Toronto 7, Ontario.

Le programme de divertissement pour les dames

Le programme des distractions pour les dames débutera le dimanche 14 mai, à 8h15 du soir, à l'hôtel Royal York, avec le CONCERT DU CENTENAIRE qui sera suivi d'une RECEPTION DES PRESIDENTS.

Le lundi 15 mai, à 8h45 du matin, un PETIT DEJEUNER DE GOURMET "PAS COMME LES AUTRES" pour les dames aura lieu à la Georgian Room, chez Eaton. Le transport en autobus est prévu à partir de l'entrée principale de l'hôtel Royal York.

Des visites de l'Hôtel de Ville, de la Bourse de Toronto et d'autres centres d'intérêt auront lieu le lundi matin et après-midi. Des renseignements supplémentaires seront fournis au bureau d'inscription ou dans la salle d'accueil des dames.

Le lundi 15 mai, une SOIREE D'ANNIVERSAIRE 1867-1967, avec gâteau d'anniversaire et élection d'une Reine du Centenaire aura lieu à l'hôtel Royal York, à 8h30 du soir.

Des COCKTAILS et un DEJEUNER — STYLE 1867 sont prévus au Centre O'Keefe le mardi 16 mai à 11h30 du matin, et seront suivis d'une visite du Centre O'Keefe. Le cadre et l'atmosphère de ce déjeuner seront réhaussés par des anti-quités, des œuvres d'art et de la musique. Le mardi soir, à 9h30, à l'hôtel Royal

York, aura lieu une soirée du genre "BARN RAISING BEE", avec danses carrées et musique d'époque au piano.

Des COCKTAILS, un DEJEUNER et le DEFILE DE MODE "EEDÉE", présenté par l'Ontario Fashion Institute, sont prévus pour le mercredi 17 mai au Inn on the Park. Départ en autobus à 11h30 du matin, à l'entrée principale du Royal York.

La soirée du mercredi est réservée au BAL DU CENTENAIRE qui aura lieu à l'hôtel Royal York à 8h00 du soir et qui sera précédé par un rassemblement amical débutant à 7h00 du soir.

Les frais de \$12 pour les dames comprennent les soirées des dimanche, lundi et mardi, le petit déjeuner du lundi, les déjeuners des mardi et mercredi ainsi que le défilé de mode du mercredi. Les billets de certaines distractions étant en nombre limité, il est donc recommandé de s'y inscrire tôt.

L'Association

Le Conseil exécutif en faveur de congrès nationaux indépendants

Le Conseil exécutif a pris une décision qui fera date, en approuvant le principe d'un congrès de l'ADC national et indépendant, organisé par un comité permanent qui sera responsable devant le Conseil des Gouverneurs. Le Conseil n'a pas retenu les deux autres formules proposées — (1) une entente selon laquelle l'Association verserait une contribution annuelle et permettrait l'emploi de l'expression "Congrès conjoint de l'ADC et de l'ADX" mais sans participer à la préparation d'un tel congrès, ou (2) des réunions annuelles de l'ADC consistant en sessions annuelles et fixées à l'avance, du Conseil des Gouverneurs seul.

Lors de sa dernière réunion (13-15 février), le Conseil a déclaré que "le système actuel des assemblées annuelles est démodé et, en fait, il a changé peu à peu au cours des ans. . . . Il faudrait adopter maintenant une politique plus générale afin de commencer à préparer ce qui sera réalisé plus tard (après 1970)."

Par ailleurs, le Conseil a fait remarquer les difficultés que certains dentistes ren-

contrent pour obtenir une assurance satisfaisante contre la négligence professionnelle et a vivement recommandé que tous les membres corporatifs de l'ADC organisent une assurance collective pour leurs adhérents.

Le Conseil a également

Demandé au secrétaire d'évaluer les besoins financiers de l'Association pour les cinq prochaines années;

Approuvé une déclaration de principe concernant le fonds de réserve de l'ADC;

Approuvé la reconnaissance provisoire de la Société canadienne des dentistes de l'hygiène publique comme section de l'ADC, et recommandé un moratoire sur la reconnaissance de sections nouvelles jusqu'à ce que soit terminée l'étude entreprise par le Comité des spécialistes et de la spécialisation sur la reconnaissance des sections et des spécialités;

Nommé un sous-comité (W. P. Munsie, Vancouver, et H. R. MacLean, Edmonton) pour rédiger une nouvelle déclaration officielle concernant les besoins futurs en services dentaires, déclaration qui sera ensuite examinée par les membres corporatifs, ainsi que par les comités et conseils compétents;

Demandé au Comité consultatif sur l'assurance commerciale de continuer à étudier la possibilité d'une association nationale pour la protection légale;

Elevé à \$10 la cotisation de membre associé;

Décidé que le congrès national de 1971 se tiendra à Windsor, Ontario (28-30 juin pour le Conseil des Gouverneurs, 1-3 juillet pour le congrès);

Nommé W. G. McIntosh délégué officiel à la conférence annuelle de la British Dental Association à Birmingham, Grande-Bretagne (24-29 juillet).

Le Conseil exécutif approuve une étude sur les assurances

Le Conseil exécutif de l'ADC, qui s'est réuni du 13 au 15 février, a autorisé une étude des assurances collectives sur les frais professionnels, sur la vie et sur la protection du revenu, qui sont offertes parallèlement par l'Association dentaire canadienne, le Collège royal des chirurgiens dentistes de l'Ontario et l'Association dentaire de l'Ontario.

L'étude a pour but de comparer les mérites respectifs des systèmes suivants:

Emploi d'un courtier d'assurances à titre de conseiller à temps plein, ou bien d'un comité dentaire assisté par un conseiller professionnel indépendant, tous deux à temps partiel;

Versement des primes à une compagnie privée ou bien à une compagnie sans but lucratif gérée par les dentistes;

Contrat collectif basé sur le réinvestissement des dividendes ou sur le principe de la prime fixe sans participation aux bénéfices.

Cette décision fait suite à la réunion qui a eu lieu le 6 janvier entre le Comité consultatif de l'ADC sur l'assurance commerciale et le Comité de l'assurance du CRCD et de l'ADO. L'étude débutera après que le CRCD et l'ADO auront approuvé les questions proposées. Dans cette éventualité, le Conseil de l'ADC a consenti à ce que le secrétaire de l'ADC, W. G. McIntosh et le secrétaire du CRCD, K. F. Pownall, négocient un contrat avec la compagnie qui sera chargée de l'étude. Le Conseil a également approuvé à ce sujet la formation d'un comité directeur composé de R. A. Hugill, de Toronto, pour le CRCD et l'ADO, de P. S. Christie, de Halifax, pour l'ADC, et de O. J. Yule, de Toronto.

La vérification des comptes de la PIPL

La vérification des comptes de la société Professional and Industrial Pensions Limited, qui administre les régimes de retraite et d'assurance créés par l'ADC, confirme que l'argent versé par les dentistes est dûment transféré aux compagnies de fiducie et d'assurance en temps voulu. Telle est la conclusion essentielle de la vérification soumise au Conseil exécutif de l'ADC lors de sa réunion à Toronto, du 13 au 15 février. C'est le Comité consultatif de l'ADC sur l'assurance commerciale qui avait demandé, dans une résolution du 31 octobre 1966, la tenue de cette vérification, conformément aux dispositions de l'accord fiduciaire passé entre l'ADC et la PIPL.

Les vérificateurs rapportent que:

Tous les fonds versés par les dentistes à la PIPL sont transférés à la compagnie

de fiducie ou d'assurance convenue, à la date prévue, et selon le montant indiqué;

Toutes les primes versées d'avance et dues à la succession des dentistes décédés sont dûment remboursées;

Tous les escomptes ou remboursements de prime aux dentistes sont correctement effectués;

La garantie générale contractée par la PIPL constitue une protection suffisante contre le détournement de fonds.

Les vérificateurs ont fait l'éloge du travail accompli par les responsables de la PIPL et de leur souci de déterminer la prime la plus économique pour une protection satisfaisante.

Le Comité des services auxiliaires approuve le certificat d'assistante dentaire

Le Comité des services auxiliaires, réuni à Toronto les 19 et 20 janvier, a approuvé une proposition demandant la création d'un bureau qui délivrerait les certificats d'assistante dentaire. Les grandes lignes du projet ont été tracées dans le rapport d'un sous-comité qui a rencontré les représentants des assistantes dentaires le 18 janvier. Le bureau de certification aurait pour but:

1. D'établir des normes nationales de formation, de sorte que les assistantes puissent se déplacer librement d'une région à une autre sans perdre leur rang ni leur utilité;

2. De tenir des examens en vue de délivrer le certificat d'assistante dentaire;

3. D'examiner périodiquement les programmes de formation afin de veiller à ce qu'ils évoluent au même rythme que les progrès de la science dentaire, et d'autoriser tous les programmes de formation d'assistantes dentaires;

4. De relever le niveau de l'assistante dentaire, qui cesserait d'être une aide sans formation pour devenir un membre dûment qualifié de l'équipe dentaire.

La proposition a été transmise au Conseil de l'enseignement qui devait l'examiner à sa réunion des 8 et 9 mars. Elle sera également soumise au Conseil des Gouverneurs en mai. Soulignant la nécessité d'un certificat, le Comité des services auxiliaires s'est déclaré d'avis qu'un bureau national devait être créé sans retard.

Par ailleurs, le Comité:

A décidé d'examiner la possibilité de créer une seule catégorie d'auxiliaires, qui soient capables d'effectuer les tâches actuellement réparties entre les hygiénistes et les assistantes;

A recommandé que les principes directeurs de l'ADC concernant le personnel auxiliaire demeurent la référence définissant le rôle des hygiénistes dentaires;

A renouvelé son appui aux études pilotes effectuées dans les facultés dentaires sur les tâches du personnel auxiliaire;

A recommandé de poursuivre, sous la direction des membres corporatifs provinciaux, des essais contrôlés portant sur un élargissement des fonctions des hygiénistes et des assistantes dentaires.

En réponse au rapport du sous-comité qui a rencontré le 18 janvier les représentants des laboratoires dentaires, le Comité des services auxiliaires s'est déclaré d'avis qu'une autre conférence de cette nature en 1968 serait utile.

Canada

Le Collège royal des chirurgiens dentistes retarde la 1^e Partie de l'examen

A cause du très grand nombre de candidats désireux de subir le premier examen de membre du Collège royal des chirurgiens dentistes du Canada, il n'a pas été possible de préparer convenablement et en temps voulu la 1^e Partie de l'examen (sciences fondamentales). Par conséquent, le Conseil du Collège a décidé, lors d'une réunion récente, de reporter les examens de la 1^e Partie aux 29 et 30 septembre 1967. Les candidatures à cet examen seront donc maintenant acceptées jusqu'au 30 juin 1967. Les formules d'inscription et les brochures sont fournies par le Secrétaire, Collège royal des chirurgiens dentistes du Canada, Suite 614, Medical Arts Building, 170 St. George Street, Toronto 5, Ontario.

Chronique internationale

Un dentiste torontois participe à une étude de momies

Le docteur A. T. Storey, de la Faculté de chirurgie dentaire de Toronto, était le membre canadien d'une équipe dentaire canado-américaine qui se rendit en Egypte l'année dernière du 10 au 30 décembre, pour y étudier les momies royales du musée du Caire. Les visiteurs prirent des radiographies de profil de la tête des momies et étudièrent les anciennes méthodes d'embaumement.

La Berkshire Conference aura lieu du 11 au 15 juin

La 17^{ème} Annual Berkshire Conference, de l'université Tufts, consacrée à la périodontie et à la pathologie buccale, se tiendra du 11 au 15 juin à Lenox, Massachusetts. Les thèmes en sont "la chirurgie plastique du périodonte" et "l'occlusion". Parmi les conférenciers, citons les docteurs Henry Beyron, de Stockholm, Suède, J. L. Bernier, Marvin Goldstein, C. L. Nabers, Sydney Silverman et Melvin White.

La conférence est ouverte aux omnipraticiens et aux spécialistes. Pour tous renseignements complémentaires, écrire à Tufts Berkshire Conference, Tufts University School of Dental Medicine, 136 Harrison Avenue, Boston, Massachusetts 02111, USA.

Exposition historique au Congrès mondial de Paris

Les dentistes, les collectionneurs et les antiquaires sont invités à proposer des objets, instruments, dessins, gravures, tableaux et documents pour l'Exposition internationale sur l'histoire de l'art dentaire qui aura lieu à l'occasion du Congrès mondial de la FDI à Paris, du 7 au 13 juillet. En général, les pièces datant d'avant la fin du 18^e siècle seront seules retenues. On demande surtout des cofrets d'instruments finement décorés, des pélicans, des poinçons et de vieux forceps.

Les personnes qui désireraient proposer des objets doivent écrire avant le 31 mars à M. S. Popesco, 47 rue Claude-Lorrain, Paris 15e, France, en indiquant la nature, les dimensions, le poids et la valeur de chaque article. Dans le cas de tableaux, fournir une photographie de 5 x 7 pouces de bonne qualité pour chaque tableau. Ce sont ces documents qui permettront à la commission responsable de choisir les articles devant être exposés. Les frais d'assurance et d'expédition (aller et retour) seront assumés par le congrès pour les articles qui seront acceptés.

Congrès dentaire iranien à Téhéran le 5 septembre

Les dentistes canadiens sont invités à assister au 5ème congrès de la Société dentaire d'Iran. Le congrès aura lieu à l'hôtel Royal Téhéran Hilton, le 5 septembre. Pour tous renseignements, écrire au Dr Navab, Secrétaire, Société dentaire d'Iran, 82 avenue Hafez, Téhéran, Iran.

Fluoration

Charlottetown vote en faveur de la fluoration

Par une mince majorité, Charlottetown a décidé le 8 février de fluorer son eau. C'était le premier référendum sur la fluoration tenu au cours de l'année du centenaire. Lors d'un référendum précédent, tenu en 1960, la fluoration avait été repoussée par 27 voix seulement. Capitale de l'Île du Prince-Édouard, Charlottetown, qui compte plus de 18,000 habitants, est la première municipalité de sa province à adopter la fluoration.

Loi sur la fluoration dans le Connecticut

Unique aux États-Unis, la loi du Connecticut sur la fluoration est entrée en vigueur le 1er janvier. Dans une première étape,

la loi impose la fluoration à toutes les compagnies d'eau desservant plus de 50,000 personnes, puis, progressivement, aux compagnies plus petites. En octobre de cette année, toutes les compagnies desservant plus de 20,000 personnes assureront la fluoration, et 88 pour cent des habitants du Connecticut en bénéficieront.

Recherches

Le fluor inhibe la résorption osseuse, in vitro

Des recherches sur des cultures de tissu, effectuées avec l'appui du US National Institute of Dental Research, indiquent que le fluor agit directement sur l'os en prévenant la résorption osseuse plutôt qu'en augmentant la formation osseuse, ce qui suggère l'emploi d'applications topiques dans certains cas de maladie du périodonte.

L'emploi du fluor pour enrayer la résorption osseuse présente un grand intérêt car ce processus constitue un problème grave dans la maladie du périodonte. Le fluor augmente les proportions de calcium dans l'os, et s'est montré efficace dans quelques cas d'ostéoporose et de maladie de Paget. Cependant, on ne sait pas de façon certaine si le fluor augmente la formation osseuse ou diminue la résorption osseuse, ni à quelles concentrations il est efficace.

Selon Paul Goldhaber, de la Harvard School of Dental Medicine, des études de culture de tissu effectuées sur des os crâniens de souris de cinq jours ont montré que le fluor, à des concentrations de 1.9 p.p.m., enravait la résorption osseuse provoquée par l'adjonction au milieu d'extrait parathyroïdien, sans affecter la formation d'os nouveau. Le fait de tremper ces os pendant une minute dans des solutions de fluor de l'ordre de 1,900 à 19,000 p.p.m. et de les rincer ensuite trois fois avant de procéder à la culture, n'enlève pas la croissance ni le développement, mais contrecarre la résorption osseuse dans le milieu de culture.

Partial Dentures

F. Singer and F. Schön. Chicago, Year Book Medical Publishers, Inc., 1966. 207 p. Illus. \$27.50

No doubt it is presumptuous of me to discuss the work of such eminent and distinguished European prosthodontists as Professors Singer and Schön; but as I have been asked to review this publication, I can but give my own impressions of it.

Though designated as a textbook for the practitioner, the book is hardly that, being more in the form of an atlas. As a guide to clinical and laboratory procedures, it has limited value for North American readers if they are not already familiar with the methods described. Too many details are mentioned in passing or given only summary treatment. For example, impressions are mentioned briefly in a section on the recording of centric occlusion. The topic is then dismissed with one short paragraph about an impression of an abutment tooth prepared for a cast restoration.

Nor can I agree with Professor Ackerman's foreword where he claims that "this book will be of interest to the student as well as the practitioner, because it discusses and critically reviews topical, controversial and basic problems." This important topic would occupy about 25 pages of any standard prosthodontic textbook in North America. *Partial Dentures*, by contrast, contains precious little discussion or critical review of current prosthodontic problems. Perhaps this is due to the inclusion of material on fixed restorations. At any rate, the cost of the book should quench effectively any interest the student might have in acquiring it.

In place of discussion, I found much that is dogmatic, reflecting, no doubt, the views and procedures favoured by the authors. Clasp retainers are treated summarily while great emphasis is given to intracoronal retainers. There is no comparison of the relative merits and disadvantages of these two basic types of retainers, nor are the indications for the use of either type set forth. Many arbitrary statements are made with little, if any, supporting evidence other than references to published works. The majority of these references are in German or Italian and were published up to 20 years ago.

The quality of the book is unquestionable. It has an attractive cover and is printed on

high grade, heavy, glossy paper. It is profusely illustrated with excellent coloured photographs and well executed drawings. The print is sharp and clear, but being double-spaced with little more than half of each page imprinted, the entire book could have been presented very easily in little more than 100 pages.

In summary, I found the book disappointing. Nothing has been added to the dental literature or to the philosophy and practice of partial denture prosthodontics. By comparison with earlier texts by Applegate, McCracken, Terkla and Laney, there is little difficulty in deciding wherein lies the greater value.

K. M. Kerr

Edgewise Orthodontics

R. C. Thurow. Ed. 2. St. Louis, C. V. Mosby Company, 1966. 304 p. Illus. \$15.50

Dr. Thurow has come out with a second edition of his authoritative text on edgewise therapy. He describes clearly the substantial change in thinking that has occurred during the intervening four years since the earlier printing.

The second edition strongly emphasizes basic considerations in orthodontics, individual chapters being assigned to archwires and beams and to wire and bracket selection. Several chapters are given to metals used in orthodontics and the behaviour of these metals. Others treat of biological and tissue changes. Somewhat surprisingly, only two chapters—less than 40 out of some 300 pages—are devoted to arch management and auxiliary forces. One would think that clinical phases merit more attention.

The influence of Begg's light wire technique is clearly reflected by the author's attention to working archwires. Headgear receives only passing mention, and diagnosis and management of various orthodontic classifications are somewhat lightly passed over.

Emphasis on basic considerations and inadequate attention to diagnostic and clinical phases of orthodontics limit the value of this book for the practising orthodontist. It would be better employed as an undergraduate text.

W. O. Mulligan

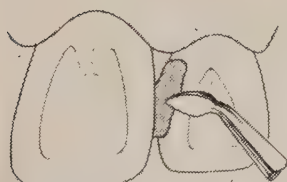


Figure 8-56. Initial finishing with cleoid carver.

entire surface (Fig. 8-57). This removes the serration marks of the condenser face and begins the contour of the restoration.

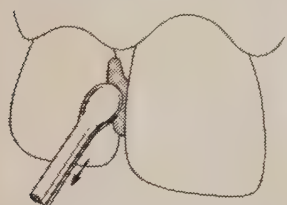


Figure 8-57. Initial contouring with Rhein trimmer.

The gingival excess is next removed with a gold knife⁹ (Fig. 8-58).

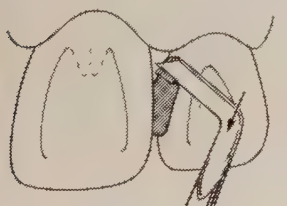


Figure 8-58. Removing gingival excess.

This knife is used with a shaving motion pulling away from the gingival margin. Very small amounts of gold are cut off with one motion. This prevents an opening of the margin.

With the rubber dam still in place, a separator is placed to gain an additional 0.5-mm. separation. The Ferrier double winged separator stabilized with compound is

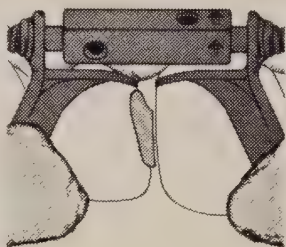


Figure 8-59. Slight additional separation gained.

ideal¹⁰ (Fig. 8-59). A size No. 1 or No. 2 is usually used for anterior teeth. Great care must be exercised not to over separate and thus damage the supporting tissues of the teeth. When separation is gained, the bridge of gold between the restoration and the adjacent tooth may be cut off with a tightening strip¹¹ (Fig. 8-60). Various grit linen strips and disks are used to establish the anatomical contour. The strips should be pulled towards the margins (Fig. 8-61). Any heavier excess of gold is removed using

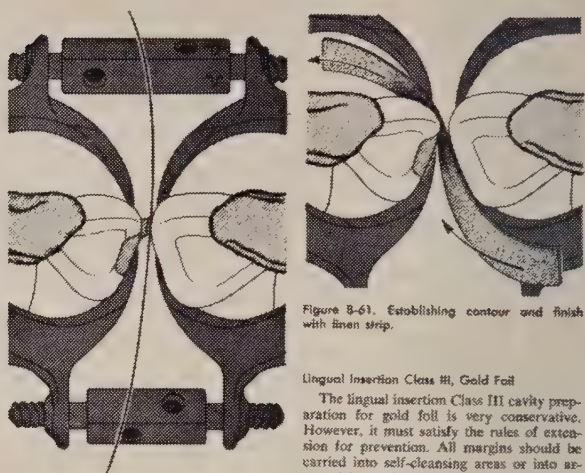


Figure 8-60. Removing gold bridge with safety metal strip.

Figure 8-61. Establishing contour and finish with linen strip.

Lingual Insertion Class III, Gold Foil

The lingual insertion Class III cavity preparation for gold foil is very conservative. However, it must satisfy the rules of extension for prevention. All margins should be carried into self-cleansing areas or into areas of immunity (Fig. 8-62).



Figure 8-62. Outline form, lingual insertion Class III gold foil.

a medium or fine grit carot-shaped stone mounted in a handpiece. The final polish can be obtained using dry silex and tin oxide. To diffuse the light reflected from any gold visible on the labial surface a silex finish is allowed to remain. A small, very fine grit rubber abrasive wheel¹² also may be used.

The separator and rubber dam are removed and the occlusion checked before dismissing the patient. Contact with the adjacent tooth should be re-established within twenty-four hours.

PREPARATION OF THE CAVITY. The initial opening is made using a No. 700 carbide bur in a contra-angle with conventional speed. A

Typical pages from "Operative Dentistry."

Operative Dentistry

L. C. Schultz, G. T. Charbeneau, R. E. Doerr, C. B. Cartwright, F. W. Comstock, F. W. Kahler, Jr., R. D. Margeson, D. L. Hellman and D. T. Snyder. Philadelphia, Lea & Febiger, 1966. (Available from The Macmillan Company of Canada Ltd., Toronto) 296 p. Illus. \$15.50

At first glance one is awed by the formidable number of co-authors of this book — a veritable committee of nine. I congratulate them for producing such a book at all. Plaudits are also in order for the publisher. The book has an attractive binding. It is printed in easily read type. The photographs are excellent, and there is a well conceived layout with illustrations and related text appearing in close proximity.

It is unfortunate, however, that the title is not appropriate to the content. The authors do not live up to the objectives stated in the first paragraph of the preface: "This book reflects the collective thinking of the teacher, the researcher, and the practitioner of operative dentistry. It has one common unifying objective, to provide a foundation for the learning experiences necessary to clinical operative practice. The subject matter is

directed specifically to the undergraduate dental student. However, long experience in presenting it to postgraduate and graduate students gives assurance of the receptivity of this group and of the value of the text to all interested in continuing education." Had the authors entitled this work as "An Introductory Manual to Preclinical Operative Techniques," one could have accepted the text as valid.

Figure 2-10 on page 11 detracts from the remainder of the book. Likewise, a portion of the text entitled "Biological Basis for Cavity Preparation" on page 10 would be more fitting as information for dental patients or junior high school students than for dentists. It is a pity that the authors did not enlist an additional member from their school, Dr. Avery, to write this particular section of the book.

References to research and the role of the researcher in operative dentistry are well camouflaged in this text. Descriptions of specific technical procedures outnumber observations on histological and histopathological changes during and after operative procedures. Pages 228-9, for example, are devoted to mechanical separators. There are eight illustrations on these two pages, yet not a single photomicrograph to demonstrate the

effect of a mechanical separator on the periodontic membrane. In similar vein, I deplore the assertion that "great care must be exercised not to over separate and thus damage the supporting tissues of the teeth" when the authors do not specify what they mean by 'adequate' and 'over' separation. Similar doubts are engendered by their statement, "the compound is softened over flame and applied to dry teeth." Endodontists beware!

This book would have been much more reliable had the authors used clinical cases instead of typodont models for the demonstration of operative procedures. Sections through prepared teeth are far more meaningful than the published line drawings. These illustrations, apart from those in Chapter 4, are useful for depicting preclinical operative technical procedures; but they are scarcely adequate for the postgraduate and graduate student and they are totally inadequate for the researcher. In Figure 7-7, where the authors do use a clinical case, it is difficult to connect the photograph with the related text which reads: "Other factors important in obtaining resistance and retention form include sharp, well defined line angles." The photomicrograph immediately above this observation does not portray sharp, well defined line angles. On the contrary, the gold inlay seems to float in a thin bath of cement and it is difficult to detect the finished margin of the gold. There appears to be cement on top of the enamel and encompassing the cavo-surface margin of the inlay in a manner quite unlike the finishing procedure described on page 189.

In view of the rising cost of publication, it would have been desirable to exclude all unnecessary textual material. But, unfortunately, the book is replete with needless repetition. For instance, the technique for mercaptan rubber base impressions is fairly well described on pages 155 to 159. Why then repeat this information on pages 249 and 261? Even more objectionable is the inclusion of product lists at the end of every chapter. Page 202 contains no less than 15 references to the Kerr Manufacturing Company, Detroit, Michigan, Zip Code No. 48208. There is no justification for this practice and I hope that other textbooks will not emulate this example. Such extravagant handling of print and paper cannot be condoned.

Despite these criticisms, the book has several commendable features. In many instances the authors illustrate the advancement to rounded line and point angles. For this alone they are to be congratulated. For example, Figure 6-4 shows a mesiodistal section of a Class III silicate preparation, and Figure 6-5 shows a labiolingual section of a Class V silicate preparation, each with rounded line angles. But, unfortunately, the authors are not consistent throughout the book. Figure 5-8 illustrates a distolingual section through a molar tooth where two

line angles are present. One is sharp whereas the other is rounded by reason of a retentive groove on the cervical floor. The same occurs in Figure 8-50, a mesiodistal section of a conventional Class III cavity for a gold foil restoration. Here, the incisal retention is rounded while the gingival retention is sharp. If, as the authors claim, gingival retention is obtained by using a small half round bur, they would be well advised to continue their conservation of tooth structure and refrain from using hand instruments to sharpen the gingival axial line angle.

All told, I cannot recommend this book as good value. It will be interesting to see whether a second edition, if there is one, remedies the deficiencies of the first.

T. J. Harrop

Annotated Guide to Health Instruction Materials in Canada

Ed. 2. School Health Committee of the Canadian Health Education Specialists Society, Ottawa, 1967. 105 p. \$1.75

Prepared with the classroom teacher and the public health worker in mind, this second edition of the *Guide* is the only comprehensive reference to free and inexpensive health instruction materials in Canada. It is listed in several of the provincial health curricula as a reference book for teachers. Its publication was made possible through the financial assistance of the Canadian Life Insurance Association.

An extensive study of the provincial health curricula served as a basis in determining the subject areas to be included in this book. All materials listed have been subdivided into three categories dealing with physical, mental, and social aspects of health. Their inclusion in the *Guide* was based on criteria related to scientific accuracy, readability, applicability to Canadian practices, availability and cost.

In its present form, the *Guide* lists over 600 English and French titles of leaflets, booklets, posters, etc., which are available from various voluntary, government, and professional organizations and commercial companies. To assist teachers in film selection, a listing of over 50 agencies maintaining film libraries is also included. This book will be of special interest to health, physical education, science, and home economics teachers and to public health workers in general.

Three annual supplements will be made available to owners of the second edition without charge at the beginning of each calendar year, and will be forwarded upon receipt of the order form which is included at the back of the *Guide*.

J. M. Marshall

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Quarterly report

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	<i>Montant investi</i>	<i>Valeur au marché</i>	<i>Valeur unitaire</i>	
Government Bond Fund	\$ 650,978.26	\$ 617,482.34	\$13.879	Fonds d'obligations gouvernementales
Corporate Bond Fund	1,140,321.89	1,078,648.35	14.830	Fonds d'obligations corporatives
Common Stock Fund	3,840,266.74	4,092,211.57	19.717	Fonds d'actions ordinaires
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Syndicalisme professionnel et Bill 25

Le Bill 25 est une loi de la législature du Québec ayant pour but de mettre fin à une longue grève des enseignants, en leur ordonnant le retour en classe dans des conditions de travail et de salaire fixées unilatéralement par le gouvernement.

Les quelques semaines qui se sont écoulées depuis l'adoption du Bill 25 ont certainement permis que se calment les plus vives passions qui avaient été suscitées par cette loi. Maintenant qu'un climat d'objectivité relative est rétabli, il est intéressant d'examiner les faits et de voir dans quelle mesure les événements qui se sont écoulés ces derniers mois peuvent affecter la profession dentaire au moment où elle se prépare à discuter avec le gouvernement de la province de Québec d'un programme d'assurance santé dentaire, c'est-à-dire, au moment où elle se prépare en quelque sorte à négocier un contrat de travail qui ne manquera pas d'affecter la majorité des dentistes du Québec.

Notons d'abord que dans un conflit semblable à celui qui a opposé les instituteurs au gouvernement, ou à celui qui opposerait éventuellement les dentistes au ministère de la Santé, le gouvernement se révélera toujours un antagoniste très fort qui dispose de moyens législatifs d'une puissance telle, qu'il est assuré de gagner la partie chaque fois qu'il sera exaspéré ou poussé au pied du mur, au point de se résoudre à braver une partie de l'opinion publique.

Par ailleurs, l'attitude adoptée dans ce conflit par les grandes centrales syndicales nous permet de replacer dans une optique réaliste la puissance de la solidarité syndicale. En effet, lorsque la lutte s'engage avec un adversaire de taille, la solidarité syndicale perd une grande partie de sa puissance de conviction.

Bien qu'elles aient dénoncé avec vigueur l'injustice d'une loi qui lésait les droits fondamentaux des enseignants, les grandes centrales syndicales n'avaient pas la puissance voulue pour faire échec à cette loi spéciale. Une grève générale de sympathie aurait certes pu forcer la main du gouvernement. Elle aurait eu cependant des répercussions si intolérables pour toute la province, qu'elle aurait risqué de compromettre le bien général de tous les syndiqués.

On constate donc qu'à l'intérieur du syndicalisme, comme partout ailleurs, le bien particulier doit céder au bien général. De peur de compromettre les privilèges de tous leurs membres, les syndicats ont dû renoncer à défendre les droits fondamentaux des enseignants, et se sont contentés de leur recommander de se soumettre à une loi que tous qualifiaient d'injuste.

Ce n'est donc pas par la force que peut espérer obtenir justice un groupe de professionnels qui se prépare à discuter avec le gouvernement. C'est par la raison et le respect de l'autre partie que l'on peut espérer en venir à un règlement adéquat de nos problèmes.

Il importe peu de savoir si le groupe qui nous représentera dans les discussions auprès du gouvernement sera un syndicat, une chambre professionnelle, une association provinciale, ou une association nationale. Ce qui importe, c'est la façon dont seront menées les discussions, et surtout, la valeur des suggestions positives que la profession pourra faire au gouvernement. Plutôt que de se faire la lutte pour le pouvoir et le prestige, nos organismes professionnels devraient s'occuper de mettre en commun leurs ressources de façon à pouvoir trouver une solution adéquate aux problèmes que suscite un programme provincial d'assurance santé dentaire. Il importe d'élaborer à ce sujet une pensée qui soit commune à toute la profession, et qui tienne compte des faits, des intérêts des dentistes, de ceux du public, de même que des possibilités du gouvernement.

Lorsque viendra l'heure de mettre sur pied un programme d'assurance santé dentaire, l'organisme qui sera le plus utile à la profession ne sera pas celui qui aura la force nécessaire pour jeter la société tout entière dans le cahot afin d'obtenir gain de cause. Ce sera au contraire, celui qui pourra présenter un ensemble de suggestions positives capables de convaincre nos dirigeants qu'il est possible d'assurer la santé dentaire du public sans compromettre les intérêts individuels des dentistes, ou l'équilibre du budget provincial.

Quebec's Bill 25 and the professional unions

Earlier this year the Quebec legislature enacted Bill 25, thereby terminating a prolonged teachers' strike in that province. This act empowered the province to order teachers back into their classrooms. It also gave the government unilateral authority to regulate teachers' salaries.

Now that passions inflamed by the implications of Bill 25 have had time to cool, we can examine the facts and determine how they may affect the dentists of Quebec as they prepare to negotiate the terms of an agreement with the provincial government — a contract which will likely affect a majority of the province's practitioners.

To begin with, government emerges as a very strong contender in any conflict such as the one which pitted the teachers against the provincial authorities or one which might conceivably set the dentists against the provincial health department. Governments possess powerful legislative weapons, and they will not hesitate to use these if pushed to the limit — even if they have to defy public opinion.

Secondly, the performance of organized labour in this conflict sheds an interesting light on the capability of the trade unions. We see that union solidarity crumbles and the vaunted power of organized labour withers when labour is confronted by such a redoubtable adversary. Vigorous in its condemnation of the injustice inherent in a law that injured the teachers' fundamental rights, organized labour was nevertheless powerless to interfere with the course of Bill 25. True, labour could have mounted a general strike out of sympathy for the teachers. This might have forced the hand of the government. But such an action would have unleashed intolerable repercussions

throughout the province which, in their turn, could have jeopardized the general welfare of all trade unionists.

Obviously, the common good had to take precedence over individual rights — within the labour movement as elsewhere. Afraid of risking the privileges of their rank and file members, the unions abandoned the defence of the teachers and advised them to comply with a law which both groups considered unfair.

The lessons are self-evident. A professional group that bargains with government cannot rely on force to win its argument. We can only settle our problems by observing the dictates of good sense and exhibiting respect for our adversaries. When negotiating with government, it matters little whether the spokesman for the dental profession happens to be a professional corporation, a professional dental union, a provincial dental association or a national dental association. Of far greater importance is the spirit in which the profession approaches the negotiating table and the real worth of the positive suggestions it submits to government. Rather than compete for power and prestige, dental organizations should pool their resources and seek adequate solutions for problems that are bound to arise from a provincial dental health insurance scheme. This requires an enlightened attitude — a frame of mind that blends the legitimate interests of the dentist with the aspirations of the public and then melds the two with whatever courses are open to government.

When the time comes to initiate a dental insurance scheme, we cannot afford to be represented by an organization that wants to jolt society in order to gain its own ends. Our representatives must be capable of presenting a compendium of positive proposals — a package that will convince legislators that they can insure the dental health of the public without harming the interests of the dentist and without upsetting the equilibrium of the provincial budget.

The foregoing is a free translation of the editorial "Syndicalisme professionnel et Bill 25."

As Others See It

Rags or riches

The dental surgery's four walls, with its dental equipment, provides the environment in which a dentist in general practice spends from eight to 10 hours of each day—a very large proportion of his life.

The surgery can be treated as something crudely functional, with which to make a living, or it can be simple, yet efficient, using ingenuity to overcome expense with carefully thought-out work study ideas. It can also be a palace on which expense is lavished to give pleasure to the practitioner by matching in every way the comfort of his own home both functionally and aesthetically. Such a surgery can help the patient to relax and provide a soothing, comfortable environment which helps to overcome fears of the imminent procedures.

To create a surgery out of a room will cost from £1,000 with plumbing, decorating, etc., to £5,000, and every penny spent has to be earned the hard way. With little aid for the initial expense from the Inland Revenue and none

from the Health Service, this constitutes a very heavy burden which time does not lighten, as replacement with more modern equipment is always in the face of rising costs. The decision to spend is balanced by many considerations on how to split the total 'cake' available—home, wife, children, and living on the one hand, and on the other what level of expense is worth while in the district to attract patients to the practice. Many patients are influenced by the appearance of a practice, relating in their own minds cleanliness and efficiency with tidiness and good work; dingy surgery with dingy teeth; good taste with good judgement. That the Health Service, always dealing in averages, is very unjust to the man who spends more on the practice than the one who is just crudely functional is no real justification for not moving with the times. If all dentists spent more than the total financial cake would, on the present system, be made larger by the Government.

Now what can be said of the equipment that is at present available? There is little doubt that an extremely exciting and very wide range is obtainable. Modern methods of operating are forcing manufacturers to make their chairs units and very much more flexible than in the past.

Three main lines of development have become apparent. The ultimate in flexibility of the single trunk unit is obtained in the American trend with such famous manufacturers as S. S. White, Weber, and the latest unit from the Dental Manufacturing Co. The Continental trend has been to separate the units into two halves, the 'split unit' so called, examples of which are made by Kavo, Emda, and Siemens. These units split into left hand and right hand halves, both emanating from the same junction box.

Lastly, there is the chair unit, as yet few in number but available in this country, such as the American-Japanese Morita unit. This has all the usual unit instruments and works built actually into the chair, into the back rest and underneath. It invites a very careful assessment.

Chairs are greatly advanced and although expensive, one undoubtedly gets exactly what one pays for. The motor chair encourages better operating positions and saves bad posture by the ease and speed of its repositioning of the patient.

Cabinets have not yet come to maturity and the choice is very mundane. A little more development is required here to produce the same advances as with chairs and units.

The emergence of built-in units to surround the chair with a planned working area is very slow, although now one or two dental companies are experimenting with such things; on the Continent and in America they are in abundant supply—a case of cost repressing development.

In a National Health world of production line dentistry with a rate of efficiency being achieved over the last 15 years which compares wonderfully with any other industry in Britain, it is a little sad that few of those endeavouring to advance their profession by raising their standards, and doing the more advanced work, can do little more than eye enviously the magnificent Continental and American equipment which seems to sell so freely in other countries, and yet is beyond the reach financially of most of us. Our utility palaces will have to suffice and British ingenuity continue to prop up the State scheme until the authorities, with their aptitude for obtaining money, provide us with beautifully equipped clinics working at half the efficiency.

Microangiographic studies of periodontic and dental pulp vessels in monkey and man

R. L. de C. H. Saunders,* MD, FRS (Edin), Halifax, Nova Scotia

Contact and projection x-ray microscopy of monkey teeth has demonstrated continuity of the blood supply to unerupted permanent and erupted deciduous teeth. The distribution of interdental, periodontic, neural and apical blood vessels in monkey teeth was traced by projection microangiographs. These revealed continuity of periodontic and gingival vessels. X-ray microscopy of injected human foetal jaws revealed the intradental vascular plexus from which odontoblasts derive raw material. This plexus may be instrumental in the transfer of nutrients, prenatal infectious agents and antibiotics, such as tetracycline. High power projection micrography of the human pulp revealed a peripheral plexus with capillary loops in close contact with dentine terminal bays. Intradental and periodontal vascular plexuses of developing teeth are thought to be related to enamel and dentine formation and to the processes of mineralization and eruption.

Au moyen de microradiographies de dents de singe, on a démontré la continuité de l'apport sanguin aux dents permanentes qui n'ont pas encore fait éruption, de même qu'aux dents temporaires. La distribution des vaisseaux sanguins interdentaires, périodentaires, nerveux et apicaux a été observée au moyen de la microangiographie. Elle a révélé la continuité des vaisseaux périodentaires et gingivaux. La microradioscopie de mâchoires de fœtus humain, après injection d'un produit de contraste, a mis en évidence le plexus intradentaire d'où les odontoblastes puisent la matière première. Ce plexus peut jouer un rôle dans le transport des produits nutritifs, des agents infectieux et des antibiotiques, comme la tétracycline. A fort grossissement, on peut observer dans la pulpe de dents humaines un plexus périphérique dont les anses capillaires sont en contact avec la dentine. On croit que ces plexus périphériques et intradentaires influent sur la formation de l'émail et de la dentine, et sur les processus de minéralisation et d'éruption.

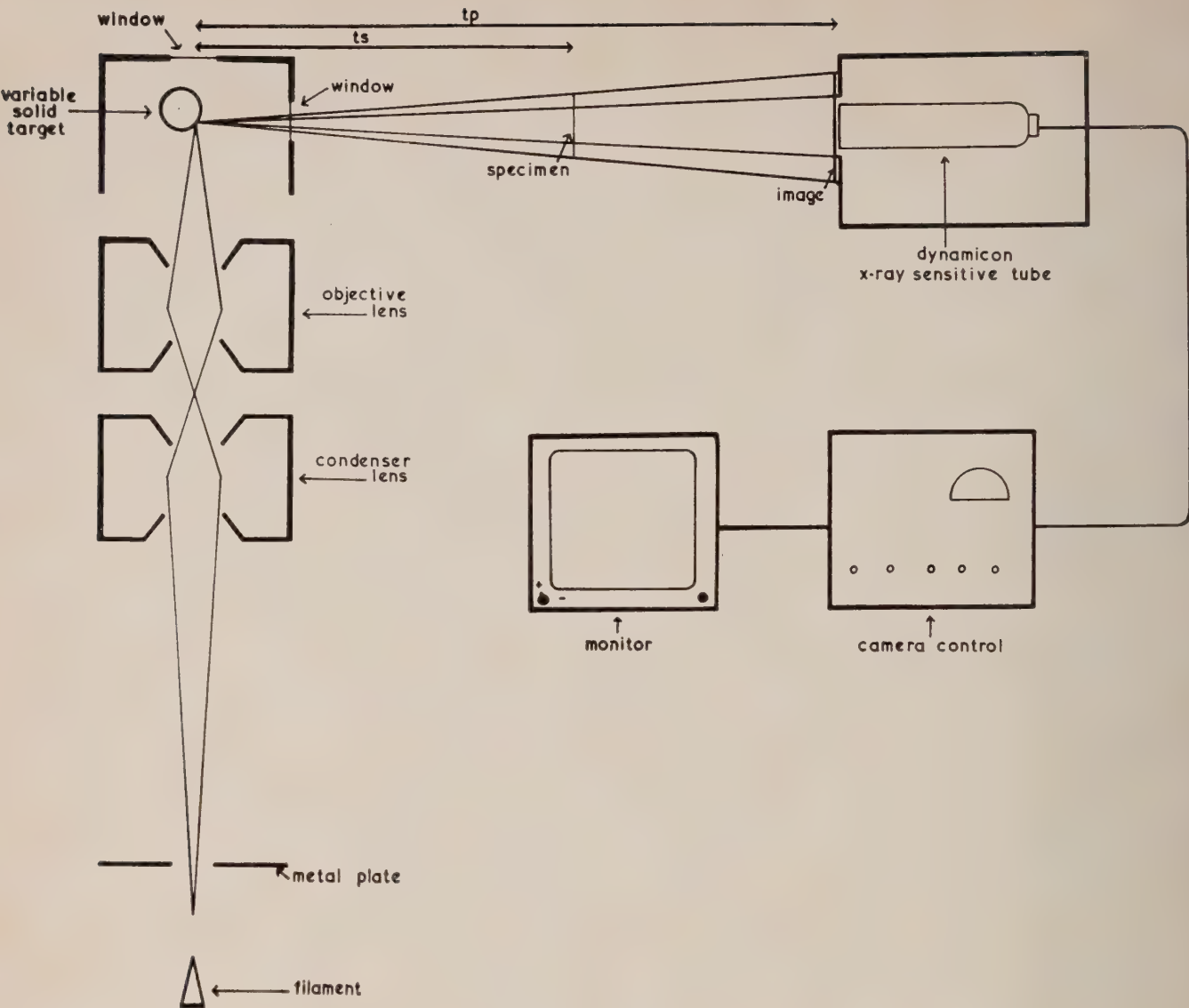


FIGURE 1 Principle of the x-ray projection microscope. An electron beam is focussed to produce a point source of x-rays. This is used to project an enlarged image of a specimen onto a photographic plate or an x-ray sensitive vidicon coupled to a TV monitor. An annular variable solid target or metal foil transmission target may be used.

The microscopic blood vessels of the dental pulp can be demonstrated in both the developing and the adult human tooth by x-ray microscopy.¹⁻³ Advances in the understanding of the blood supply of the tooth and its supporting tissues have had to await the development of new techniques, such as x-ray microscopy, electron microscopy, and the use of radioactive isotopes.³

Traditionally, dental pulp vessels were studied histologically following the injection of either carmine gelatine or India ink. But the knowledge thereby gained is limited because sectioning tends to destroy what is being sought. Direct observation of the dental pulp vessels, introduced by Taylor in 1950,⁴ was extended by Pohto

and Scheinin⁵ in 1959 who used an observation window in the side of the rat tooth to study spatial and temporal changes occurring in these vessels either naturally or in response to experimental treatment. This method is nevertheless fraught with severe technical difficulties which stem from the character of the hard enveloping dental tissues, the opacity of the dental pulp and the short depth of focus of the optical microscope. These difficulties can be overcome by x-ray microscopy with its qualities of penetration and great depth of field.

Both contact microradiography and projection x-ray microscopy may be used to study the dental pulp vessels. The first study of foetal and adult human dental



FIGURE 2 X-ray micrograph of young rhesus monkey mandible showing the second permanent molar germ, with the intradental vascular plexus lying beneath the cusps of its developing crown. The inferior dental artery sends germinal branches from the mandibular canal to supply this plexus. The periodontal vascular plexus can be seen lying above the cusps. Note the pulpal vessels within the unformed root of the erupting first molar. X11.

pulp vessels by contact microradiography was reported in 1957.⁶ The contact method is the simplest method of recording these vessels. Here, the jaw or tooth is injected with a radiopaque material and then placed in contact with a fine grain emulsion and exposed to a source of x-rays, preferably a fine focus tube. The one-to-one image so obtained is then examined microscopically or photographically and enlarged. The resolution, however, is limited both by the grain size of the emulsion and that of the optical system used to produce an enlargement. The capillary detail also tends to be unsatisfactory. This led¹ to experimentation with the x-ray projection microscope developed by Cambridge University physicists Cosslett and Nixon.⁷ These experiments re-

vealed that not only primary x-ray magnification but also sharper definition of all the dental pulp vessels including the capillaries was possible.

Study of the periodontic and dental pulp vessels of the Rhesus monkey and man by projection x-ray microscopy has recently been reported.³ The x-ray projection microscope resembles an inverted electron microscope. In it, two electromagnetic lenses are used to focus a fine electron beam upon a thin metal foil target, producing a point source of x-rays ranging between 0.1 and 1 μ in diameter. This point source provides primary magnification by simple geometrical projection, the alteration of the target-specimen (T/S) and target-plate (T/P) distance varying both the magnification and size



FIGURE 3 X-ray micrograph of rhesus monkey anterior teeth showing the inferior dental artery giving dental branches to deciduous dentition above, and germinal branches to permanent successors below. The intradental plexus is readily seen in the incisor and canine germs. Vascular bridges can be seen connecting the radicular vessels within the pulp chamber of the first deciduous molar. X15.

of the vascular field (Figure 1). Owing to the great depth of field the specimen (in this case the dental pulp) can be shifted laterally between successive exposures and recorded stereographically. In practice the tooth is placed close to the target of the x-ray microscope, and its image is recorded on a plate held at a suitable distance from it by a metal box camera. Magnifications of $\times 100$ to $\times 1,000$ are obtainable in a camera length of one-half to four inches, with a resolution approxi-

mately equal to the size of the target spot.

The dental pulp vessels may be injected with a radiopaque substance in various ways. Micropipette injection of the pulpal vessels via an apical window can be performed under a dissecting microscope. This is difficult, however, due to the small calibre of the vessels (approximately 0.1-0.2 mm.) and tough enveloping pulpal connective tissue.⁸ Suction-injection of freshly extracted teeth was introduced by Kramer⁹ who used India ink



FIGURE 4 Projection x-ray micrograph showing vascular bundle composed of pulpal vessels ascending the root canal and 'fanning out' within the pulp chamber into subdental capillaries. Compare their calibre with those of the adjacent gingival capillaries. Observe the continuity of periodontic and gingival vessels. X85.

and then decalcified and cleared the tooth to study the pulpal vessels. This method was adopted and modified by Saunders¹ for the injection of radiopaque substances. Here, suction is applied to a drill hole in the tooth crown after several capillary loops at the margin of the exposed pulp have been severed with iris scissors under a dissecting microscope. A fine particle radiopaque substance, such as Thorotrast (Hayden Chemical Co., New York) or Micropaque (Damancy & Co., Ware, Eng-

land), is then sucked through the root or apical vessels using a negative pressure of 140 to 150 mm. Hg. Not all teeth can be satisfactorily injected. The reason for this is as yet unknown. But experience has shown that it is essential to use freshly extracted teeth and body warm solutions. Teeth can also be injected *in situ*, either post mortem or during life as in the case of the monkey, by injecting the radiopaque substance either into the heart or carotid vessels. In the young

monkey jaw the radiopaque substance can be seen in the inferior dental artery, pulpal vessels, and also the intradental and peridental vascular plexuses of the permanent tooth buds. Material prepared by these methods has been studied both by the contact and projection methods of x-ray microscopy. To date the teeth of 14 monkeys, over 50 human foetuses (ranging between three and seven months), and over 400 extracted adult

teeth (ranging between 10 and 70 years) have been injected and examined.

Both contact and projection x-ray microscopy of the intact injected jaw of the young monkey show the blood supply of the unerupted teeth and demonstrate the continuity of the blood supply of the dental sacs and erupted teeth. A peridental vascular plexus can be seen surrounding the dental sac and germ of the unerupted tooth. This is continuous with the intra-



FIGURE 5 X-ray micrograph of injected and isolated human foetal lower lateral incisor showing the intradental vascular plexus beneath the developing crown. This plexus lies within the dental papilla or future dental pulp; here, part of it is seen through the uncalcified organic matrix of the crown. Human foetus, six months, C.R. 9.5 ins. X48.



FIGURE 6 Projection x-ray micrograph of an adult human bicuspid tooth showing the small pulpal arteries and larger pulpal veins within the pulp. Note the rich peripheral or subdental capillary plexus both in the coronal part (above) and the radicular part (below). Female aged 35 years. X58.

dental vascular plexus lying within the dental papilla below the developing crown (Figure 2). Projection microangiographs

show very clearly that the blood supply of the erupted and unerupted tooth is shared, there being a common vascular

path. For example, as an apical artery passes toward the root of an erupted deciduous tooth, crypt and germinal branches pass to the peridental and intradental plexuses of the unerupted permanent tooth germ (Figure 3).

X-ray microscopy also clearly demonstrates the blood supply of erupted monkey teeth of either dentition, revealing the distribution of interdental, periodontic, neural and apical branches. Projection microangiographs show that the apical artery on entering the apical foramen divides almost immediately into several principal or central arteries. These subdivide to form a vascular bundle that fans out into the subdental capillaries as it ascends the root canal and pulp chamber (Figure 4). Continuity of the periodontic and gingival vessels is a prominent feature.

X-ray microscopy of injected human foetal jaws and isolated tooth germs shows that the intradental vascular plexus must be regarded as a nutritional capillary plexus from which the odontoblasts draw raw materials (Figure 5). This plexus precedes the appearance of the enamel and mineralization of the crown. The transverse anastomoses which connect the subcuspal vessels in the developing molar persist as 'vascular bridges' across the pulp chamber of the adult molar. The intradental plexus of the developing tooth must play a role in health and disease, transporting raw materials, prenatal infectious agents (German measles, syphilis) and antibiotics, such as tetracycline, which discolour teeth.

X-ray microscopy of the adult human pulp reveals its rich blood supply and the pulpal vascular pattern of single and multi-rooted teeth. In single-rooted teeth the larger centrally located pulpal vessels are surrounded by smaller paraxial vessels which radiate and subdivide to form the rich peripheral or subdental capillary plexus (Figure 6). This plexus extends over the whole coronal part of the pulp and down into the root canal. Its

richness is an index of pulpal metabolic activity. In multi-rooted teeth the pattern is similar except that vascular bridges unite the pulpal vessels across the lower part of the pulp chamber.

High power projection micrography reveals that the peripheral plexus of the pulp is subdental, its capillary loops lying in close contact with the dentine within dentinal bays. The pulpal veins show a terminal constriction suggesting a sluggish venous return, favouring the transvascular diffusion of calcium, fluoride and other ions. Age changes and also pulp stones have been recorded.

The intradental and peridental vascular plexuses of the developing tooth must be related to the formation of dentine and enamel, and the processes of mineralization and eruption. Further work is required regarding the 'take up' of nutrients and minerals from the pulpal vascular system, and their diffusion outward in both the growing and mature tooth. Radioactive isotopes may throw light on the role of the pulpal circulation in transdental flow and tooth maturation.

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Forrest Building,
Carlton Street



FIGURE 1 Silver point fitted using a haemostat.



FIGURE 2 Radiograph of silver point fitted in a lower anterior tooth mounted in a stone cast.

Silver point break-off technique for endodontic therapy

T. P. Mullaney,* DDS, MSD, Lexington, Kentucky

The author describes a method of fitting, seating and breaking off silver points using test file handles. The method is a simple, yet efficient means of accurately placing these modified silver points to the predetermined length of the root canal.

■

L'auteur décrit les méthodes qu'il emploie pour ajuster et briser les pointes d'argent qui servent à obturer les canaux radiculaires. Cette méthode qui emploie des manches micrométriques ajustables est à la fois simple et efficace. Elle permet de placer avec beaucoup de précision ces pointes d'argent de façon à ce qu'elles s'adaptent à la longueur du canal radiculaire.

The silver point break-off technique in endodontics is not new; yet, nowhere is

there a detailed description of this procedure, particularly of the seating of the silver point.¹⁻³

The dentist who uses this technique must contend with certain problems, such as (1) the lack of tactile sensation when seating the point, (2) uncertainty as to whether or not the point has been reseated to the correct depth, and (3) the difficulty in knowing whether the point has broken off.

The method here described can be used in posterior as well as anterior teeth. The technique resembles one that was recently outlined by Healey and Weine.⁴ It differs only in the manner of fitting the silver points.

MATERIALS

Standardized silver points, preferably without flattened ends.



FIGURE 3 Test handle placement over end of silver point.

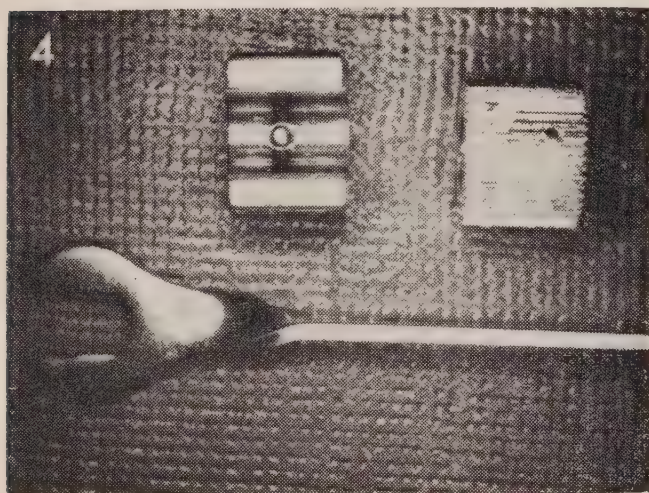


FIGURE 4 Wrenches for tightening test handle.

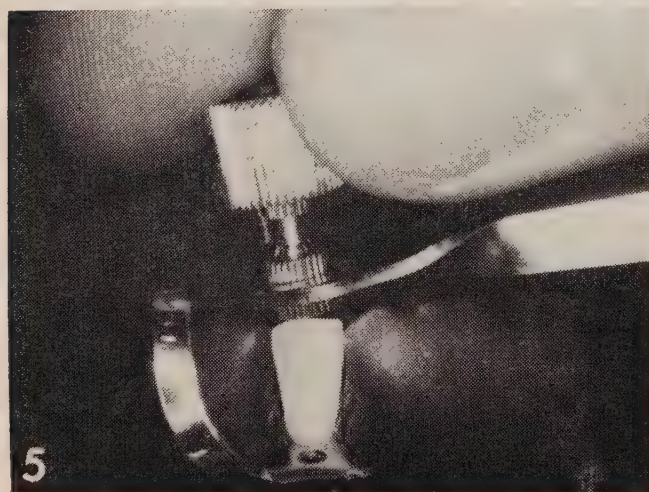


FIGURE 5 Use of the wrenches in tightening the test handle on the silver point.

A small haemostat.

Union Broach test file handles and wrenches (Unigauge test instruments,

Union Broach Company, Long Island City, New York).

A measurement gauge.

A carborundum disc, an air turbine handpiece with a fissure bur, or a wire cutter.

Root canal sealer.

A Glick plastic instrument (for use in molar teeth).

METHOD

The tooth is first treated by conventional root canal therapy. The root canal is enlarged with standardized files. Next, a silver point of comparable size is inserted with the haemostat until a definite "tug-back" is felt,¹ indicating a tight apical fit of the point (Figure 1). The haemostat is then removed and the length of the silver point is confirmed by a periapical radiograph (Figure 2). It is imperative that the silver point fit accurately. A poorly fitting silver point negates the procedures that follow.

If the silver point has a flattened head, this is removed with a high speed bur or a wire cutter, leaving a round shaft protruding above the incisal edge of the tooth to allow for placement of the test file handle.

A handle corresponding to the size of the silver point is placed over the shaft of the point until it rests on the incisal or occlusal surface (Figure 3). The handle is tightened with the wrenches supplied by the manufacturer (Figures 4 and 5). It is used to remove and insert the silver point during subsequent manipulation.

The silver point is then notched so that it may be broken off in the root canal. Notching is accomplished with the carborundum disc, the fissure bur or the cutting pliers. The handle is firmly grasped and the point is notched at the desired level by means of the disc or the bur or by applying gentle pressure with the cutting pliers.

The position of the notch varies depending on whether the silver point is intended for an anterior or a posterior tooth. An anterior tooth may subsequently receive a precast precious metal dowel (Kerr's

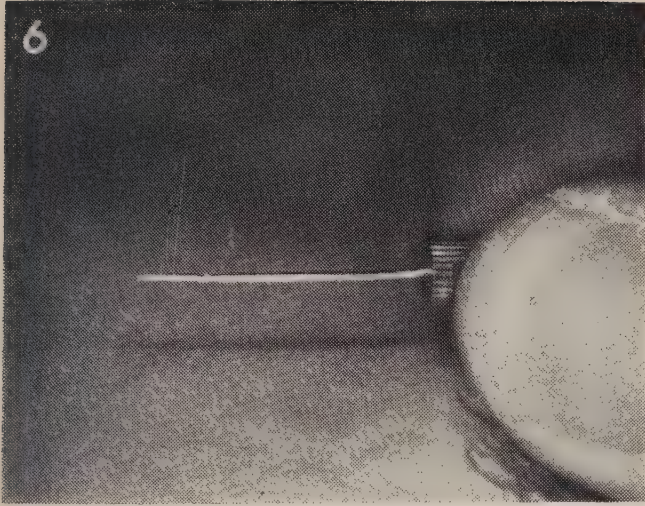


FIGURE 6 Silver point notched at the apical third.

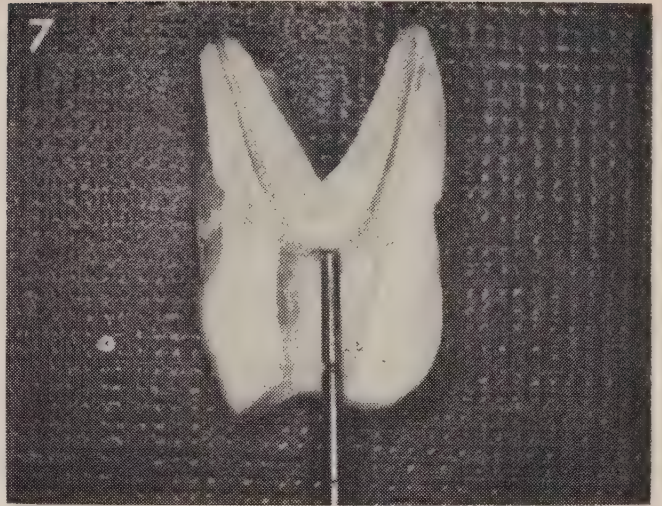


FIGURE 7 Use of the Glick plastic instrument to determine depth of pulp chamber in a molar.

Endo-Post) or other form of post and core. The silver point for such a tooth is therefore notched at its apical one-third (Figure 6). The location of this mark is determined with a metal gauge and the silver point is scored lightly with the side of the gauge. Silver points for posterior teeth are normally broken off about 2 mm. above the floor of the pulp chamber. The depth of the pulp chamber is determined by inserting a Glick plastic instrument to the floor of the chamber and noting the depth (Figure 7). This measurement, less 2 mm., is transposed to the silver point and measured off from the handle. Again, the point is lightly scored before notching (Figure 8). Silver points broken at this mark are short enough to permit the placement of a restoration yet long enough to facilitate removal of the point at a later date, if the need arises.

Before filling the root canal, root canal sealer is introduced into the canal with an endodontic file. The tip of the silver point is also coated with root canal sealer and inserted into the canal until the test handle rests on the incisal or occlusal edge of the tooth (Figures 9 and 10). While exerting apical pressure (to prevent coronal displacement of the point), the handle is rotated until the silver point breaks (Figure 11). When resistance is no longer felt, the upper part of the point may be removed leaving the apical portion sealed within the root canal (Figures 12 and 13).

An anterior tooth can then be prepared

for the reception of a post and core by enlargement of the coronal portion to accommodate an Endo-Post and subsequent jacket crown restoration (Figures 14 and 15).

After the points in it have been broken off (Figure 16), a posterior tooth is restored temporarily. Gutta percha is placed around the silver points to facilitate their removal, if necessary. The remainder of the crown is filled with zinc phosphate cement. Subsequently, the top layer of

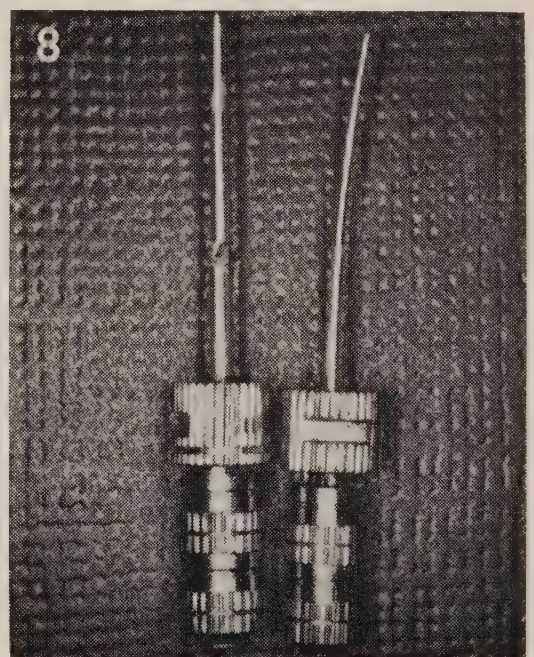


FIGURE 8 Silver points notched at a distance 2 mm. above the floor of the pulp chamber of a molar.



FIGURE 9 Placement of the silver point with root canal sealer coating the apical third of the point.



FIGURE 10 Radiograph of the silver point seated to place with the test handle.



cement is partially removed when the tooth is prepared for the permanent res-



FIGURE 12 Removing the remainder of the silver point with the handle.

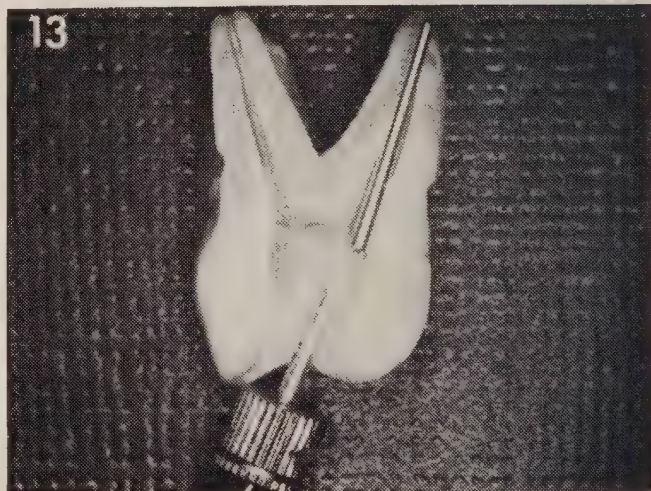


FIGURE 13 Breaking off a silver point in a molar.

FIGURE 11 Rotating the handle to break off the silver point.

toration. This allows for a sufficient bulk of restorative material.



FIGURE 14 Radiograph of a silver point broken off in a tooth mounted in a stone cast.



FIGURE 15 Radiograph of a silver point broken off in a lower anterior tooth of a patient.

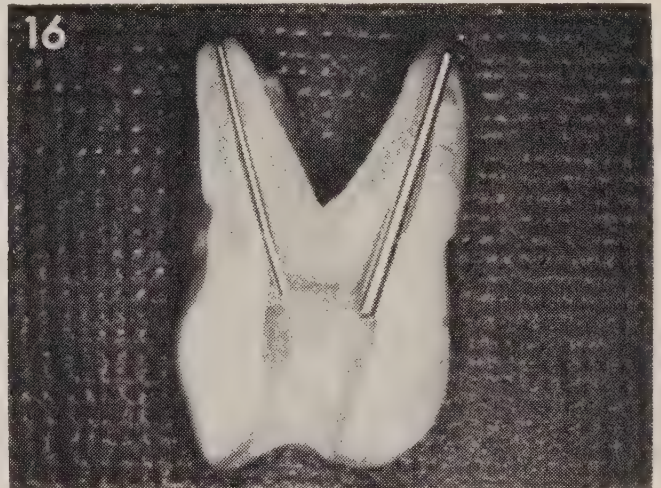


FIGURE 16 Broken off silver points in a molar.

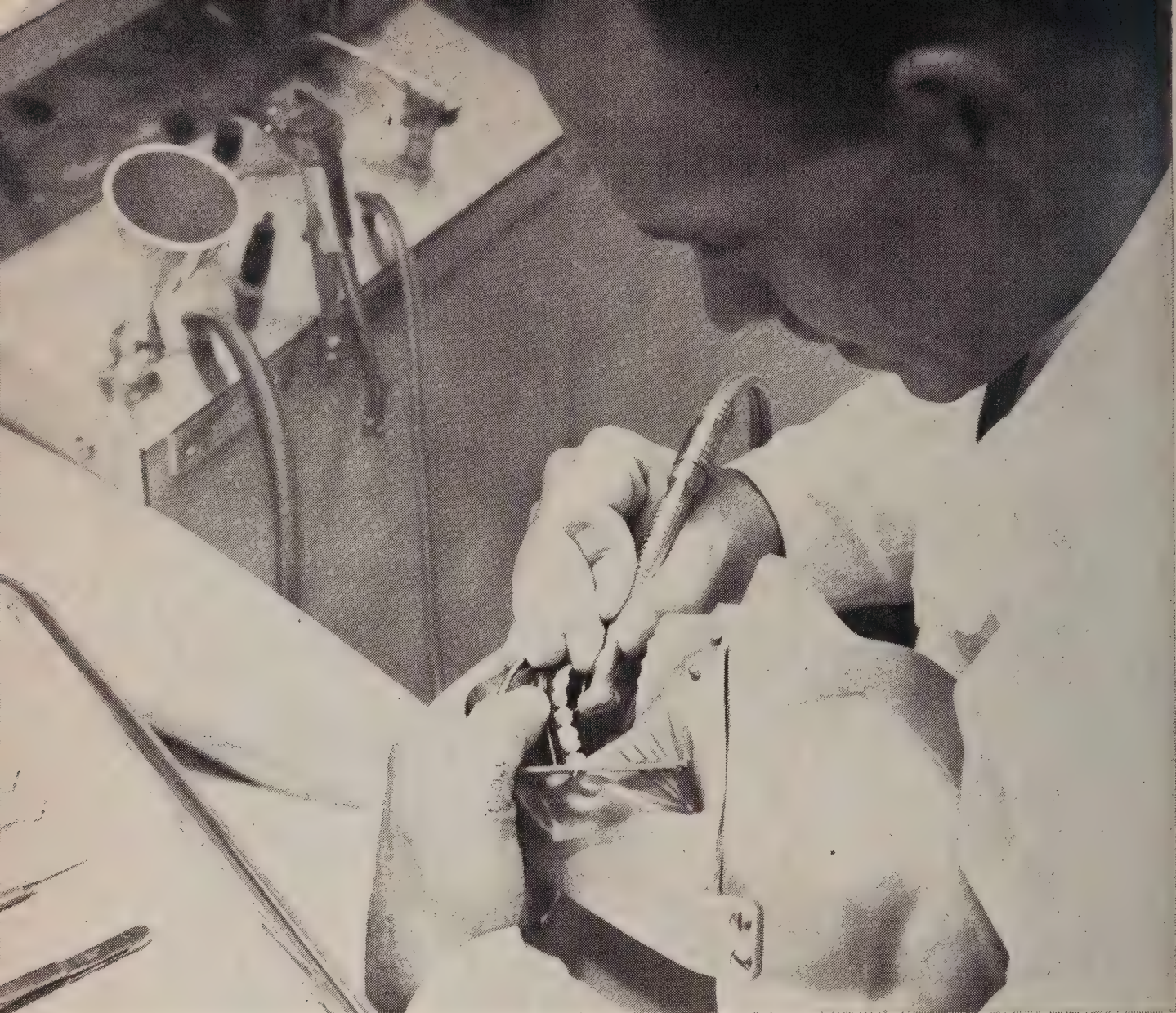
SUMMARY

A method of fitting, seating and breaking off silver points using test file handles has been described. The method is a simple, yet efficient means of accurately placing these modified silver points to the predetermined length of the root canal.

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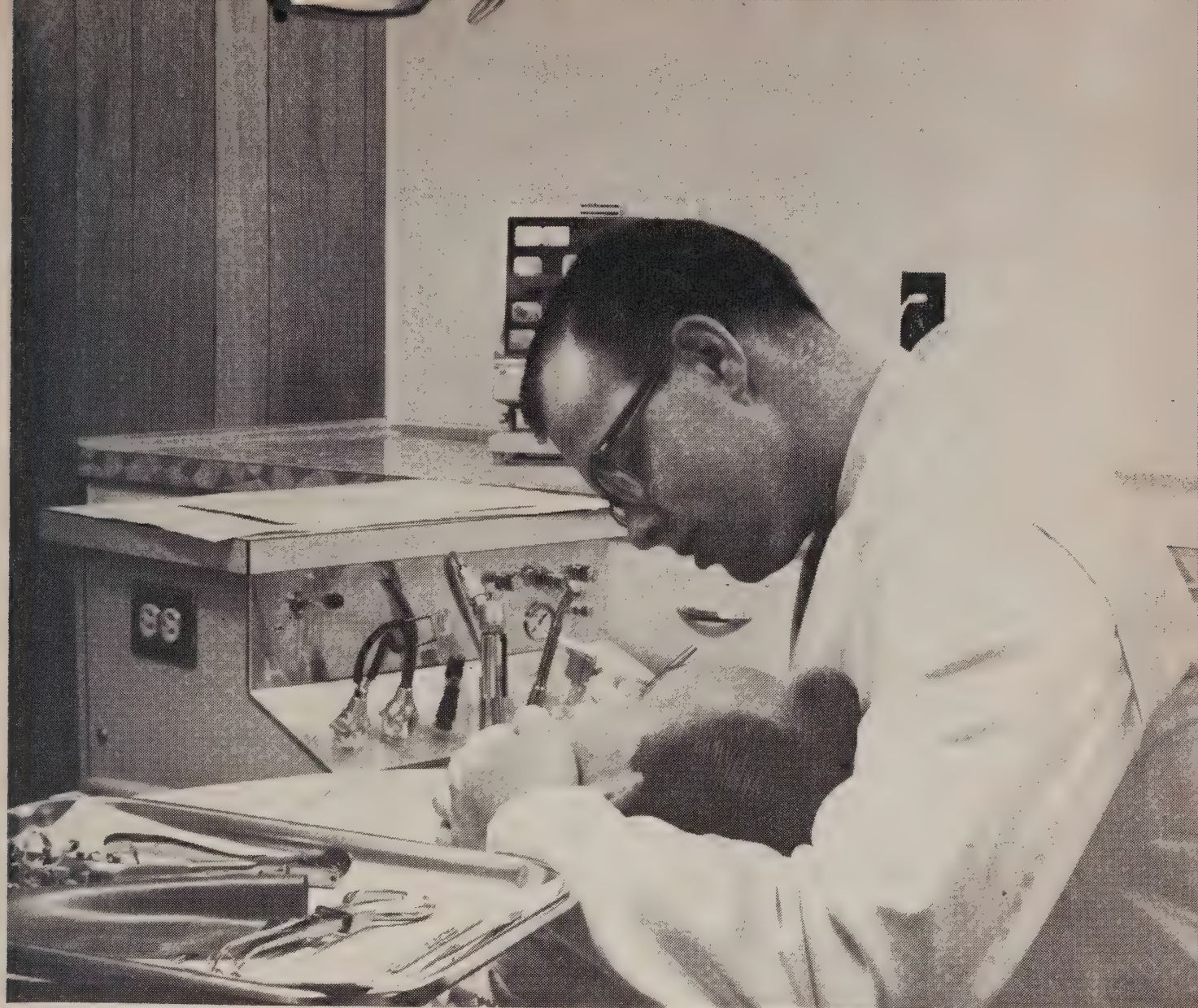


A new approach to clinical teaching in dentistry

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Clinical teaching is closely co-ordinated with preclinical instruction at the Faculty of Dentistry of the University of British Columbia. Cardinal features of the clinical program are: early exposure to patients, graded introduction to patients requiring progressively more complex care, emphasis on biological principles related to clinical dentistry, instruction in practice methods which increase efficiency and productivity, constant emphasis on preventive measures, virtual elimination of practice on typodont models, and a method of student assessing

which has turned the faculty clinic into a teaching situation rather than an arena for performance only. This has several advantages. There is better correlation between biological sciences and clinical practice. Students develop greater skill in perceiving their patients' dental problems. They also learn to assess the significance of these problems in relation to society as a whole. The net effect is to foster in the student powers of enquiry and creativity — skills that are required in the exercise of clinical judgement by those who provide health care.



A student prepares a cavity on a typodont (left) which simulates the position of a patient under normal operating conditions (right).

La Faculté dentaire de l'Université de Colombie britannique cherche à relier le plus étroitement possible l'enseignement clinique et la formation théorique. Les études y sont basées sur les principes suivants: contact avec les malades, effectué tôt et selon une progression qui place l'étudiant devant des cas de plus en plus complexes, nécessité de mieux relier les principes biologiques et la pratique clinique, enseignement des méthodes qui augmentent l'efficacité et la productivité, importance des mesures préventives, élimination quasi totale des travaux sur mannequins; enfin, évaluation du travail de l'étudiant grâce à une méthode qui lui permet de se perfectionner. Cet enseignement présente plusieurs avantages. Il établit une continuité plus étroite entre les sciences biologiques et la pratique clinique. Il rend l'étudiant plus conscient de l'importance des problèmes dentaires

des patients et lui apprend également à mesurer l'importance de ces problèmes par rapport à l'ensemble de la société. Le but visé est donc de développer la curiosité intellectuelle et l'esprit créateur de l'étudiant, facultés nécessaires au jugement clinique de ceux qui dispensent des soins de santé.

The University of British Columbia Faculty of Dentistry admitted its first class of eight students in the fall of 1964. This class has now embarked on the clinical phase of training. We are presently using temporary clinical facilities pending the construction of permanent quarters which will ultimately allow us to accommodate 40 students in each class. These factors—a small initial class and dependence on

temporary clinical facilities—account for some inevitable differences between our current teaching program and the program envisaged when fully implemented. We have, however, adapted our long-range objectives and goals to the present situation. In fact, the physical facilities closely approximate those which will be provided for student use in our permanent building.

GOALS

Any educational program must be founded on well defined goals. J. R. Ellis¹ defined the aspirations of medical education in the following manner: "The aim . . . remains what it has always been, namely the production of good doctors. Oddly enough, this aim has never been achieved by modelling the student upon the image of his masters It is true, of course, that those students who learn most easily to resemble ourselves, who mimic our mannerisms, use our language and show the same impeccable taste in clothes, do often happen to be regarded by us as the best. Nevertheless, we realize that the masters of our youth, great though they were, might have some difficulty if confronted with the problems with which we wrestle today" These comments apply equally to dentistry. We have therefore tried to identify changes in the traditional dental curriculum which will better fit our graduates for practice in the latter third of this century and the first part of the next.

One of the several tasks of a dental school is the production of dentists. "The purpose of education in the dental school is simply to produce a breed of dentists who are able to carry the profession beyond where it is now."² The specific goal of clinical training is the development of dentists who can provide total care for their patients. Included in this concept is the ability to recognize conditions beyond the dentist's capabilities and the willingness to refer such patients for appropriate treatment. "Specialization should not be permitted to become a substitute for competence in the general practitioner."³

The attainment of this objective requires some adjustment of the traditional pattern of clinical training. Mann³ has outlined the requisite changes in the following way: "During the past 15 or 20 years, an ever enlarging group of dentists, most of whom have had some special training in periodontics, has found a way of dental practice that is extremely satisfying to them. Today they are truly combining the basic biological sciences, oral diagnosis, the treatment of soft tissue lesions, occlusion, and restorative procedures most effectively As one contemplates the future direction of dentistry and the direction in which dental education should move in the years ahead, it seems most appropriate that the dental schools should seek to develop curricula . . . which will educate dentists who are much more periodontically and biologically oriented than today's graduates. . . . [This concept] would permit an interesting, integrated curriculum because it would become a frame of reference which would make most parts of restorative dentistry more meaningful."³

PROBLEM AREAS

Academic. — Problems can be identified in several areas of dental education. Some say that the traditional dental curriculum lacks the challenge and interest that attract and stimulate students of high quality.^{3,4} Others label dental teaching as authoritarian, providing insufficient opportunity for students to discover facts and skills for themselves and thus develop the necessary habits of inquiry and the exercise of judgement. Student assessment is more often based on easily measurable characteristics of a task than on criteria which have significance for the health of the patient. Students, moreover, are especially responsive to the actions and expressed attitudes of their instructors — especially clinical instructors. Differences in opinion or actions at variance with previously taught principles can therefore result in confusion and breed the feeling that some portions of the curriculum are of no real significance.

Scientific. — A major weakness of dental education is the inadequate correlation between the biological sciences and clinical practice. All too often, cavity design is dictated by the requirements of restorative materials instead of the biological requirements of the tooth. The choice of a material is governed by its cost, aesthetic appeal, and the enthusiasm or competence of the dentist. Important biological considerations such as longevity of the tooth, health of dental tissues, restoration of occlusal function and contact areas, and long term ability of the tooth to withstand cyclic loading, do not necessarily enter into this choice.

Technical. — Dental education is slow to adopt innovations that stem from technological advances. Teaching clinics overlook practice methods which are known to increase productivity and contribute to dentist comfort.⁵⁻⁷ Technological advances that increase the quantity and quality of treatment are not fully exploited. Limitations imposed by faulty equipment design go unchallenged. Fortunately, this situation is changing and it is no longer necessary to be content with 'reasonably sterile' instruments now that autoclavable handpieces and other dental instruments are available.

Behavioural. — Dental students react unfavourably to some teaching methods. Authoritarian instruction and especially task-centered teaching rather than patient-centered teaching give the student insufficient opportunity to develop skill in perceiving and solving problems. The benefits gained from learning through discovery rather than memorization are thereby lost, and the student is slow to develop the necessary self-esteem, self-confidence, self-expression and independence which he must later exhibit as a professional person. When teaching is strongly task-centered, the student has little opportunity to become immersed in a patient's problems and he fails to appreciate the depth of the patient's involvement with dental health problems.

Socio-Economic. — The student must apprehend the real meaning of health prob-

lems for the individual. He must also learn to perceive the significance of these problems for society as a whole. Unless the student is made aware of the external pressures exerted upon the dental profession, he will never understand the use of dental benefits as a bargaining point by organized labour, or the efforts of governments to recognize dental health benefits as part of the "legitimate aspirations of the people."⁸ Christie⁹ observed that "the pronouncements and concepts of organized dentistry about its role are at variance with the indefinite continuation of a pattern of dental practice which, according to the best estimate, reaches only one-third of the population in any one year" Considerations of this sort — especially the importance of preventive measures — need constant emphasis in clinical teaching if we are to harness the student's innate enthusiasm for patient treatment and help him to maintain a proper perspective.

CURRICULUM

The first two years of the University of British Columbia program are mainly devoted to biomedical sciences and pre-clinical dental courses. A limited amount of clinical experience is also offered. During the first year, students are instructed in anatomy, physiology, biochemistry and statistics. A conjoint course is also presented by the departments of oral biology and restorative dentistry. During the second year, there are courses in microbiology, pharmacology, general and oral pathology, neuroanatomy, neurophysiology and a second conjoint course in oral biology and restorative dentistry. At this point there are also introductory lectures in oral medicine, public and community dental health, oral surgery and orthodontics.

The conjoint course presented during the first year is held one-half day each week. It consists of a series of orientation discussions dealing with home care of the teeth, preventive dentistry and the relationship between the dentist, organized dentistry and the community. Each stu-

dent is then assigned a topic to prepare for discussion. These topics illustrate the dental relevance of selected areas of biology. During the second half of the academic year, students gain some insight into clinical treatment by examining and charting each other's mouths and making study casts.

The first half of the conjoint course presented in the second year is devoted to lectures on tooth morphology and occlusion. During the second half of the course, students carve a graded series of wax inlays and crowns on full arch stone casts. This exercise leads to the use of various restorative materials in extracted teeth. Several of the wax crowns are cast and polished. Principles underlying restorative procedures and the use of various dental materials are discussed in the light of information presented in previous biomedical science courses, especially courses in histology and pathology.

At the beginning of the third year, the student can focus his attention on clinical problems and correlate the information previously acquired with patient care. The teaching day for third year students is divided into three segments. The first two hours are devoted to one, or sometimes two, teaching sessions. These may consist of the traditional lecture, but other methods of instruction are more common. In some cases students lead discussions. One programmed text¹⁰ is presently used. Critical student participation is encouraged regardless of the format of the class. The second two hours of the morning are allotted to demonstrations and laboratory exercises prior to undertaking specific types of clinical treatment. The entire four-hour afternoon session is devoted to patient care.

Departmental organization and physical facilities are extremely important in attaining the goals of our academic program. The number of departments in our Faculty has therefore been markedly reduced. There are established departments of oral biology, oral medicine, oral surgery, orthodontics, public and community dental health and restorative dentistry. Courses are also taken in a number of departments in the Faculty of Medicine and the Faculty of Science. The department of oral medicine presents material

relating to oral medicine, oral diagnosis, radiology and periodontics. The department of restorative dentistry presents material in operative dentistry, fixed and removable prosthodontics, endodontics, paedodontics and dental materials.

In contrast to schools having separate clinical facilities organized around special types of treatment, each student is assigned to a cubicle in which essentially all forms of patient care are performed. The cubicles are arranged in groups of 10. One instructor is responsible for each group of 10 students. Separate clinics are provided for patient admission and for surgery because of the convenience of clustering x-ray facilities and specialized surgical equipment.

We are primarily concerned with total patient care rather than with skill in specific types of treatment. Skill and competence are acquired incidentally as the student renders total care to patients selected for his treatment. At the same time, we illustrate and emphasize the responsibility of the student and the practitioner toward the patient. The importance of preventive care is emphasized during all forms of treatment, and especially when the patient is admitted. The patient's teeth are thoroughly cleaned during the initial appointment. Charting of the mouth does not ensue until this initial prophylaxis and a complete radiographic survey have been completed and radiographs have been returned for examination. This permits a thorough examination and emphasizes the value of routine oral hygiene to the student and to the patient. The patient is also instructed in home care and a first topical application of fluoride is made. Topical applications are repeated at every opportunity, especially after the teeth have been dried during the application of rubber dam for restorative procedures.¹¹

The dental curriculum is inadequate to present all material which could be of value to the graduate.^{3,12} We have therefore eliminated instruction in skills which the dental practitioner does not use. This applies particularly to dental laboratory procedures. Time spent learning to become an accomplished laboratory technician is misplaced in a professional curriculum. After an initial acquaintance with

laboratory techniques, this type of service should be provided for students. We also believe that students should not be required to fill out lengthy departmental records which have no practical equivalent in a private dental office. It is equally important to eliminate other irrelevant bits of learning, such as developing skill in acquiring 'good' patients, ascertaining which clinical instructor is least critical of work presented for evaluation, or determining the best means to ensure that clinical space will be available for the student's use. None of these attributes contributes to becoming a competent dentist. Our role as a dental faculty is to help students become successful dentists, not accomplished dental students.

We have tried to make our curriculum more realistic by (1) early exposure to patients, (2) graded introduction to patients requiring progressively more complex care, (3) emphasis on biological principles related to clinical dentistry, (4) teaching practice methods which increase efficiency and productivity, (5) constant emphasis on preventive measures and (6) the virtual elimination of practice on typodont models.

The typodont can be a valuable training aid if it is used in a manner approximating the clinical environment so as to allow for transfer of acquired skills, and if the skills learned are realistic in human terms.¹³ Typodont instruction is therefore given in the student cubicle instead of in a 'preclinical' laboratory. All the equipment used for patient care is thus available for use on the typodont. In some ways, however, the typodont is intrinsically unrealistic. Despite great improvements in the fabrication of typodont teeth, human teeth are still very different. Typodont models are therefore only used when similarities to natural teeth exist and as an introduction to clinical procedures. For example, before placing an amalgam filling, the student prepares several fillings in extracted human teeth and then sections the teeth to observe the relationship between the restoration and the various dental tissues. Just prior to treating a patient for the first time, the student practises the whole procedure on a typodont mounted in a phantom head clamped to the dental chair. At this stage, little attention is paid

to cavity preparation for that has already been learned in human teeth. Instead, the student now learns how to position the patient, place the rubber dam, organize instruments, find finger rests, position instruments, place matrix bands, condense amalgam and carve in the mouth. When all these procedures are performed with skill, the patient is introduced and the operation is repeated in the mouth (Figure 1). This introduces living tissue as a new factor. But since the student has already examined mouths on previous occasions, even this is not an entirely novel situation.

At no time is the student overwhelmed by having to learn multiple new skills. Each learning experience proceeds from a simple start and advances in an orderly sequence so that each stage is relevant to the next. The student is highly motivated to achieve in the early parts of the sequence since the goal of providing treatment is near and can be attained more rapidly by performing well.

Reduction in the amount of time spent with the typodont is only one of several ways in which we have improved the academic environment. We also intend to be more reasonable in the area of student assessment. A comprehensive evaluation system will be used at the end of each clinical year to assess the adequacy of student performance. This information, together with clinical performance during the year, will determine the relative level of student achievement within the class. Day to day judgements are also made of each student's clinical performance. Relevant details and necessary directions to improve performance are communicated to the student and recorded in a notebook kept by him. This notebook also contains a record of the patients treated and the types of treatment rendered. The notebook is periodically reviewed to determine overall performance and areas of weakness. The types of treatment rendered guide us in selecting patients for the students. Patients are assigned so as to provide additional experience in areas which have been poorly represented or in areas of relatively weak performance. Whenever an area of weakness is identified, special instruction is provided to strengthen the student's ability. Instead of

giving him a low mark, we ensure that the student is constantly aware of the bases of our critical judgement and that he is told what he must do to improve his performance. In this way the clinic becomes a teaching situation rather than an arena for performance only. Final assessment of student adequacy is based on a combination of understanding, measured by examination, and performance, measured by constant observation.

We integrate the biomedical sciences with clinical teaching in several ways — in part by the emphasis on biomedical sciences in the first two years of the dental program, in part by third and fourth year courses that relate these sciences to clinical treatment, in part through increased hospital training, and, above all, by utilizing clinical teachers who are committed to the principle of such integration.

Two of the criteria by which the achievements of a university may be judged are "fostering in the student a permanent spirit of inquiry and engendering his powers of inquiry and creativity."¹⁴ These are precisely the most important skills required in the exercise of clinical judgement by those providing health care. Yet, clinical teaching can be extremely authoritarian. The existence of a phrase like 'ideal cavity' implies a metaphysical importance at variance with the heuristic methodology implicit in our emphasis on inquiry and independent judgement.

A significant advance in the education of health profession personnel, long recognized in other fields, is the realization that students can no longer acquire all of the necessary skills from the undergraduate program.¹⁵ Even if there were time to present all current information, the rate of new discovery and technological change would render much of this knowledge obsolete within a short time. Consequently, professional training must stress the importance of continuing education. Moreover, such training should recognize the value of critical judgement instead of relying on authoritarian pronouncements concerning the manner of rendering treatment.

CONCLUSION

The central problem in the provision of dental care now, and probably for some time to come, is socio-economic. The profession must cooperate in creating the means whereby total patient care can be provided for the entire population. Intensive research in the quest for more effective preventive measures, wider application of currently available preventive measures, greater use of auxiliary personnel, increased productivity of dentists, and cooperation with other health professions are areas for immediate action. We believe that the curriculum and facilities at our school contribute significantly in each of these areas.

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Review of prosthodontic literature in 1965

This article was prepared under the sponsorship of the Canadian Academy of Prosthodontics. It is impossible to cover the entire subject adequately in a short review. Instead, the author has selected certain aspects for major emphasis. Accordingly, this review mentions the significant information relating to fixed and removable partial dentures, complete dentures, immediate dentures, implants, maxillofacial prostheses and related aspects of prosthodontics that was published in the English language during 1965. The Academy and the author welcome readers' comments with a view toward improving the usefulness of future reviews to the profession.

Cet article a été préparé sous l'égide de l'Académie canadienne de prosthodontie. Il était impossible de passer en revue l'ensemble de la matière dans un seul article. L'auteur a donc préféré approfondir certains sujets. Il a relevé l'essentiel des informations publiées en langue anglaise en 1965 et se rapportant aux prothèses partielles fixes et amovibles, aux prothèses complètes, immédiates, et maxillo-faciales, aux implants, ainsi qu'aux questions annexes. L'Académie et l'auteur recevront avec plaisir toutes les remarques des lecteurs, remarques qui pourraient se révéler utiles pour la rédaction des récapitulations de ce genre.

Prosthodontics concerns the provision of substitutes for the coronal portions of teeth, for lost or missing natural teeth, and for associated parts of the oral cavity. It embraces fixed and removable partial dentures, complete dentures, immediate dentures, implants, maxillofacial prostheses, and the operation of the stomatognathic system. The object of prosthodontic service is the restoration of function, preservation of the remaining structures, and improvement of the appearance, comfort and health of the patient.

Limitations of time and space have restricted this article to a review of the most significant prosthodontic information that appeared in English language foreign publications during 1965.

Fixed Partial Dentures

AESTHETICS

Discussion of the ideal combination of function with aesthetics was prominent in the 1965 literature.

Commenting on porcelain fused to gold, Ryge¹ praised the strength conferred by the wetting bond between metal and porcelain but called for elimination of factors that produce stress at the interface. He was critical of corners and edges that accentuate stress at the interface, and deformation of the metal structure that weakens the porcelain to metal bond.

O'Brien and Ryge² acknowledged the benefits derived from improved wetting

of the adherend by the adhesive and from close matching between the coefficients of thermal expansion of adherend and adhesive. Ryge¹ cited two additional requirements for a rigid metal frame: carefully soldered junctions and properly designed structural members for metal pontics and crowns.

As insurance against the possible fracture of a veneer, Eisenbrand³ advocated the use of interchangeable facings and porcelain denture bases for anterior bridgework. His interchangeable porcelain facing had an incisal edge for the labial part of the pontic. The facing was modified by 'hollow grinding' of the lingual cervical end before waxing the gold backing. Eisenbrand used Ceramco gold for the cast portion of the pontic and baked additional porcelain to the cervical end of the backing to complete the cervical end of the pontic.

Pyroplast,⁴ a new plastic veneering material developed by H. D. Justi and Williams Gold Refining Company, was introduced in 1965. The liquid phase of Pyroplast is a mixture of a difunctional ester of acrylic and methacrylic acid. The solid phase is a finely divided copolymer of methyl methacrylate. Pyroplast resembles porcelain when ground by an abrasive wheel, stone or bur. Three years' clinical testing have shown that Pyroplast is quite colour-fast. It is also quite resistant to abrasion.

STRESS

Craig and Peyton⁵ studied the movement of stresses in fixed partial dentures. They used for this purpose a mandibular anterior six unit bridge with three-quarter crowns on the cuspids, a maxillary anterior six unit bridge with pinledge preparations on the cuspids, and a four unit maxillary bridge with a full crown on the second molar and a three-quarter crown on the first bicuspid.

The upper and lower anterior bridges deflected downward and tipped forward during loading of the incisal edge. The two anterior bridges, therefore, when loaded sustained tensile strains in a vertical direction on the lingual aspect and in

a horizontal direction on the labial aspect. The upper pinledge preparations were less rigid than the three-quarter crown preparations since the cement often failed at the abutments during loading. The three-quarter crown preparations appeared to be more suitable, since the mandibular bridge withstood loading of up to 60 pounds.

The upper posterior bridge deflected any loading in a typical transverse manner, since little if any tipping occurred.

FULL OR PARTIAL COVERAGE?

Kahn⁶ advocated full coverage restoration and periodontic prosthesis for patients with widespread devastating generalized loss of supporting periodontic structures accompanied by extensive pocket depth and varying degrees of mobility. But he cautioned against indiscriminate full coverage, preferring partial coverage whenever possible to save tooth structure and protect the periodontium.

Ravinett⁷ discussed the indications and contra-indications for fixed bridges in adolescents. Orthodontists, he observed, ordinarily do not object to upper or lower anterior bridges for this age group because most bone growth and development is complete by age 16. Moreover, operative preparation of adult and adolescent teeth is basically identical, and Ravinett could find few contra-indications for the construction of fixed partial dentures in adolescents.

Tegtmeier⁸ compared two methods for achieving satisfactory occlusion in posterior bridges. One of these is based on the functionally generated path technique of jaw relation recording; the other involves the use of a semi-adjustable articulator. Fixed bridges were constructed on both sides of the mouths of eight subjects, one technique being used on one side and the other technique on the other. The restorations constructed on the articulators required more adjustments in all occlusions and required more time and skill for their construction.

It is a pity that Tegtmeier did not pursue these investigations by making a further comparison with a fully adjustable articu-

lator. Kepron's subsequent comparison between the functionally generated path (Pankey Mann) technique and the fully adjustable instrument technique using pantographic tracings has shown the advantage of the latter approach.

Removable Partial Dentures

BIOLOGICAL OR MECHANICAL APPROACH?

Carlsson et al⁹ published the most interesting and most important article pertaining to removable partial dentures. These authors reported the final results of a four year investigation of tissue and tooth supported partial dentures in 99 patients. 'Food trapping' was the most troublesome complaint in approximately one-half of the patients. Nevertheless, more than 90 per cent of the subjects were satisfied with the aesthetic, phonetic and masticatory results of their prostheses.

The importance of proper abutment preparations prior to the partial denture treatment was substantiated by the finding that "nearly three-quarters of the abutments that had not been provided with gold crowns had been attacked by caries during the follow-up period."⁹

Carlsson et al also observed a close correlation between oral hygiene and the presence of caries and periodontic lesions. They concluded that the success of partial denture treatment depends greatly on the patient's cooperation and regular and efficient oral hygiene. The results of this four year study suggest that the prognosis in removable partial denture treatment hinges, in the final analysis, on biological rather than mechanical factors.

IMPRESSIONS

A new method for measuring partial denture base movement under occlusal loading was reported by Holmes.¹⁰ This author recorded differences in the movement of partial dentures fabricated from impressions made by different techniques. He observed the greatest movement when simple alginate impressions or a stock rimlock tray were used. Movement was

less pronounced when a zinc oxide paste or rubber base impression material was used. Movement with the zinc oxide paste and rubber base impression material was nearly identical for all patients.

Minimal movement resulted from the so-called 'altered cast technique.' This is achieved by using a secondary impression made with Kerr Korrekta IV wax to modify the edentulous area of the master cast. Holmes concluded that movement of a removable partial denture from occlusal loading is related to the impression technique and the impression material used.

Combination clasps have gained popularity in recent years, particularly on free-end base abutment teeth. But the risk of embrittlement of the retentive wire arm may be a source of unnecessary embarrassment to the dentist and temporary inconvenience to the patient. Asgar and Peyton effectively dealt with this problem.¹¹ They showed that excessive burn-out temperatures may provoke decomposition of the calcium sulphate in refractory investments and consequent contamination of the embedded platinum-gold-palladium wire.

Complete Dentures

PRELIMINARY TREATMENT

Preliminary management is just as important as the actual prosthodontic treatment and technical excellence, according to Boos.¹² Without adequate attention to the psychological and physiological factors, successful treatment cannot be assured. He called for greater emphasis on the preparation and proper conditioning of patients before commencing actual prosthodontic treatment.

Deeley¹³ indicated that premedication with protein supplements increases the patient's tolerance to prosthetic restorations. His study, in 28 patients wearing full dentures, showed a close relation between successful denture acceptance and the biological aspects of patients' care. Deeley's test patients received 25 Gm. of protein daily for one month, beginning one week prior to initial placement of the prosthesis. They required fewer adjust-

ment appointments and less patient-chair time during the first three weeks after denture insertion than a comparable group of patients treated for the same period of time with a placebo.

A comprehensive analysis of impression making was offered by Collett.¹⁴ The choice of available techniques, he suggested, indicates that no single technique can be used for all patients with equal success. If the basic physiological and anatomical factors are respected, however, successful dentures can be made by using any one of the many impression procedures. The main consideration, then, is the development of necessary skill in the selected technique.

To obtain maximum retention, wrote Lawson,¹⁵ an impression should (a) cover the maximum permissible surface area; (b) achieve the closest possible adaptation of denture base to epithelium; and (c) displace the border tissues to ensure a narrow salivary film for the peripheral seal.

Dimensional changes in the denture base, caused by processing and wear, do not appreciably diminish the quality of the appliance, reported Woelfel et al.¹⁶ Far more significant for denture adaptation is any alteration in the size and contour of the supporting hard and soft tissues. Patients should therefore be re-examined at regular intervals. The dentures should be re-evaluated annually and adjusted by relining or rebasing within three to five years of the initial insertion.

These authors¹⁶ demonstrated the apposition of dentures and tissues by the patterns obtained with pressure-indicator-paste. They considered manually executed PIP patterns far more reliable for making denture alterations than patterns obtained by having the patient simulate chewing.

The adhesive action of a thin film of saliva between the palate and the tissue surface of a denture has long been regarded as one of the principal sources of retention. To further enhance stability and retention, O'Brien and Ryge¹⁷ coated polymethyl methacrylate bases with a thin film of silicon tetrachloride to improve wetting and adhesion of the base. Their clinical tests ran successfully over a period of six months.

A good peripheral seal was achieved with Krol's¹⁸ hydraulic retainers which maintain the seal during all masticatory functions. These retainers consist basically of a silicone tube filled with fluid and attached with a silicone adhesive to a prepared groove just inside the denture border. Although hydraulic retainers have shown promise, resilient liners are still the material of choice for securing a satisfactory peripheral seal. Clinical results with these liners are encouraging. In fact, Bates and Smith¹⁹ reported that 60 per cent of their patients were more comfortable and had less pain with such liners. This corroborates my own observations at the Montreal General Hospital Dental Clinic.

MASTICATORY PERFORMANCE; CUSP AND CUSPLESS TEETH

The effects of various denture factors on masticatory performance were studied by Kapur and Soman.²⁰ They demonstrated that the optimal position of the food platform is on the crest of the lower ridge at the height of the lower cuspid and parallel to the flat portion of the mandibular ridge. Significant reductions in chewing efficiency resulted when the food platform was shifted to a position buccal to the crest of the ridge. Interestingly, this position of the posterior teeth was more detrimental to chewing efficiency in patients with good alveolar ridges than in patients with poor, flat ridges.

A report of Thomson²¹ shed further light on the twin controversies over cusp and cusplless teeth and porcelain and acrylic teeth in full denture prostheses. In a survey of patients who had worn dentures for four to five years, Thomson observed that the wear of acrylic teeth caused perceptible change in cusp form in 52 per cent of the patients. This attrition was due mainly to the effects of food like salads, nuts, hard sweets, and so forth. Thomson found that vertical height loss can be markedly reduced by increasing the area of occlusal contact. Consequently, he favoured flat cusped teeth for full denture construction.

FRACTURE FATIGUE

The midline of the full upper denture is a common fracture site. Often, the so-called midline fracture is really a fatigue failure, according to Johnson.²² His article on stress distribution in upper dentures identified the anterior palatal area as the region of maximum tensile strain. He warned that the risk of fracture increases if the posterior teeth are set outside the crest of the ridge. Said Johnson: thinning of the denture palate may reduce midline strain, whereas an unnecessarily thick palate only increases such strain. Furthermore, cusplless teeth reduce, and cusped teeth increase, the strain.

Geriatrics

Sialorrhoea or 'wet mouth,' which is sometimes associated with ageing, causes problems in many denture patients. These may be comfortably controlled with antisialogues such as methantheline bromide (Banthine), propantholine bromide (Pro-Banthine) or atropine sulphate.

Xerostomia or dryness due, primarily, to dehydration is mitigated by increasing the fluid intake. Cholinergic drugs, although beneficial, are contra-indicated because of undesirable side effects on other body systems.

Mechanical factors such as looseness or lack of balanced occlusion are not necessarily the sole cause of denture stomatitis. Nutritional deficiencies or infection may also be present. Such cases demand a combined therapeutic approach.

The prolonged use of denture adhesives may have a deleterious effect on the tissues. Coryza, dermatitis, gastro-intestinal distress and eczema have been produced in sensitive individuals.

Immediate Dentures

NEW CONCEPTS

Heartwell and Salisbury²³ demolished some long cherished prosthodontic concepts. For example, they found that im-

mediate dentures do not contribute to the formation of new bone. Two other significant findings: alveolectomy prior to the insertion of immediate upper dentures produces a rather unfavourable basal seat, and overenthusiasm for well rounded ridges encourages excessive surgery resulting in a poor foundation for dentures in later years.²³

Similar observations were reported by Gazabatt et al²⁴ in their comparison of bone resorption following labial alveolectomy and intraseptal alveolectomy. The latter, they found, is followed by less resorption than is labial alveolectomy.

Hedegard and Lundberg²⁵ conducted radiographic examinations to determine whether there is modification or flattening of the fossa mandibulae and tuberculum articulare following the insertion of an immediate upper denture. Their study was performed on a group of patients at the Karolinska Institute in Stockholm. Radiographic examinations were performed at the time when dentures were inserted and again 10 years later. The authors observed no major changes in the tuberculum articulare or the fossa mandibulae during this 10 year period.

Implants

History, indications and contra-indications of implants were discussed in great detail by Izikowitz.²⁶ He examined clinically and radiographically the reactions of remaining teeth, the periodontium and other oral tissues to the presence of superplant restorations. His first article dealt with the general treatment program, a discussion of different types of superplants and, finally, the clinical treatment. A second article dealt with radiographic findings. A third article concerned histological findings. The following conclusions emerged from this treatise:

(1) Before commencing superplant treatment, careful tests should be carried out to establish whether this restoration is suitable for the particular patient;

(2) The patient must be recalled for regular re-examinations even after a 12-14 month post-insertion period; and

(3) Spotless oral hygiene is absolutely mandatory.

Cranin and Cranin²⁷ reported that intra-mucosal inserts for partial and complete maxillary and partial mandibular dentures produced good results in all but six of 147 prosthetic restorations. The same inserts, however, were unsuccessful when used in complete mandibular dentures. These findings emerged from a 10 year progress report by these authors.

Elsewhere, Boucher²⁸ disclosed some encouraging preliminary results from the injection of silicone rubber material into the soft tissues over the residual ridges in an attempt to rebuild the ridge and gain sufficient retention.

Maxillofacial Prostheses

On this topic, I have limited my review to three articles only.

The first one deals with partial denture design applicable to the maxillofacial patient. Here, the principal problem is the control of stress between the resilient denture base and the more immobile teeth. The patient has an added difficulty because the denture base usually rests partly on grafted bone and grafted skin. This abnormal foundation permits greater functional movement of the base than does a severely resorbed residual ridge. Kelly²⁹ therefore prefers to use a combination clasp as advocated by Applegate some years ago. Kelly also advocates a double or split-bar type of stress breaker when all the abutment teeth are posterior to the prosthetic base. This design, he contends, prevents rotation about the anterior rests along the fulcrum line. Kelly uses the truss-bar retainer only when a large number of healthy teeth remain and maximum retention is needed to support an obturator.

The second article, by Payne and Welton,³⁰ deals with inflatable obturators following a maxillectomy. Their idea is as radically new as it is simple. According to the published description:

"The obturator [was] designed for patients who undergo maxillectomy as a part of the treatment for a neoplasm of the antral and/

or ethmoidal sinuses. . . . It consists of a latex rubber balloon attached to a denture by means of a silicone rubber former, into which is incorporated an air valve. The balloon is inflated with air to fill the surgical defect. The appliance provides a perfect oronasal seal and is self-adjusting to changes in the shape of the tissues following the surgery. The balloon may be inflated after insertion, and, therefore, the appliance can be used when there is a severely limited opening. It is light in weight and its simple construction permits easy cleaning and maintenance. . . . The upper denture is constructed in the usual way and finished with a solid acrylic resin obturator extending only about 3 mm. into the maxillary defect."

The third article concerns the use of latex for copying the texture of the skin in facial restorations. An impression is obtained from the face of a donor and a latex 'skin' pattern duplicated from this impression. Hawkinson³¹ describes an inexpensive and quick method whereby the latex skin pattern is attached to and made a part of the previously constructed pattern of the prosthesis. Both patterns are boiled out and discarded when the mould is evacuated to form the prosthesis. He claims that this procedure is superior to the hand carved skin surface patterns for these prostheses.

Mouth Protectors

An interesting new use for oral protectors is their employment in general anaesthesia where trauma to anterior teeth is not uncommon, and where the incisal edges of the anterior teeth are often used as a fulcrum for the laryngoscope to expose the larynx before intubation. The traumatic insertion of an oropharyngeal airway has also been responsible for damage to the anterior teeth.³²

Oral Lesions

The vast majority of oral lesions are inflammatory or hyperplastic in character. Oral cancer, however, constitutes about 6 per cent of all male cancer cases in the United States. Clearly, the dentist's responsibility extends beyond the replacement of missing teeth and their support-

ing structures and the simple maintenance of what remains. Early diagnosis of oral lesions, familiarity with requisite diagnostic techniques, and prompt referral to a specialist are vital to the patient's welfare. Adequate dental treatment should include a pretreatment consultation to prepare diagnostic casts and the immediate postsurgical prosthesis.^{33,34}

Stomatognathic System

VERTICAL DIMENSION, REST POSITION AND FREE-WAY SPACE

Problems associated with vertical dimension and the stability of maxillo-mandibular relations were the subject of a careful review by Swerdlow.³⁵ Controversy, as he pointed out, persists despite the many recent investigations of facial vertical dimension and the stability of the mandibular rest position. Swerdlow starts from the theory of the mandibular physiological rest position, as first observed in 1906 by Wallisch. He then refers to the exponents of the fixed rest position, and finally mentions the findings of Leif, Atwood and Tallgren who dispute that the rest position is constant throughout life. Swerdlow contends that the present divided opinion, the lack of satisfactory solution to problems of vertical dimension, and the scarcity of systematic studies, should stimulate further research in this controversial field.

Duckmanton's³⁶ study of the 158 adult males revealed no significant age related change in the morphological and rest face heights. The free-way space also remained constant over the whole adult period. Duckmanton used a standardized lateral cephalographic technique, the face heights being determined by measurements made directly on the films between the menton and nasion. The morphological face height was determined from the film exposed when the teeth were in occlusion, and the rest face height when the mandible was in the physiological rest position. The size of the free-way space was found by comparing the two values.

Preiskel's³⁷ electromyographic study of mandibular rest position yielded two addi-

tional important observations: (1) only in subjects with coincident centric relation and centric occlusion does the mandible close from rest position to centric occlusion with a typical arcing motion around the posterior terminal hinge axis; (2) the postural position of the mandible may vary with head position, thereby casting doubt upon the stability of the rest position of the mandible.

Douglas and Maritato³⁸ proposed a new method for selecting the vertical dimension of occlusion. Using the commissure of the lips as determining factor, they locate the upper occlusal plane approximately 3 mm. above the commissure and the lower occlusal plane approximately 2 mm. below the commissure. They contend that this method provides an adequate vertical dimension of occlusion in a high percentage of patients.

The contact of the lips influences the establishment of the vertical relation of the mandible to the maxilla when at rest, and the rest position is probably wholly governed by the balanced tonus of elevator and depressor muscles, said Arstad.³⁹ He extended a lower occlusion rim from cuspid to cuspid to give proper contour to the lower lip. This permits the posterior part of the tongue to spread out over the stabilized base plate and help in its retention. The final recording was made by using very soft wax in the lower bicuspid area with slight or no contact in the front.

Is there a loss in the occlusal vertical dimension with associated forward positioning of the mandible when the teeth are in centric occlusion? Does face height decrease during the first year of denture wearing, regardless of the change in the occlusal vertical dimension made at the time the dentures are inserted? Yes, said Cocco and Lloyd⁴⁰ in their cephalometric analysis of morphological face height.

CENTRIC RELATION DETERMINATION

How accurate are the current methods for determining centric relation position? To find the answer, el-Aramany et al⁴¹ evaluated the needle point tracing tech-

nique which has long been considered an accurate means of locating centric relation at a given degree of jaw opening. In 10 subjects they attached a test device to the natural teeth by means of clutches. Needle point tracings were obtained at five different degrees of jaw separation. All subjects showed antero-posterior change of the centric relation position as a factor of increases in the vertical dimension between the jaws. Moreover, repeated tracings, made from the same patients at a given degree of jaw separation and under the same controlled conditions at the same sitting, were relatively uniform. These investigators therefore concluded that the needle point tracing procedure is reliable.

EXTREME VERTICAL OVERLAP

In the past, extreme vertical overlap has always been associated with periodontic complications, abnormal masticatory patterns, excessive stress, abnormal function and possible temporomandibular joint disturbance. Likewise, vertical mandibular chewing movements have long been considered as typical of such tooth relationship. Sheppard⁴² overturned this notion. His cinefluorographic study, involving eight subjects with severe anterior vertical overlap, seldom revealed any vertical mandibular movements. The chewing pattern was completely unilateral and there was a significant amount of lateral movement as the teeth penetrated the bolus of test food, especially if it was tough and fibrous. He concluded that the teeth tend to approach each other in an end to end relationship, thereby facilitating a shearing action. This corroborates Jankelson's work.

CONTROVERSIES ON MANDIBULAR MOVEMENTS

To the discussion of mandibular movement during closure Silverman⁴³ contributed the observation that the closure pattern is not always uniform in the same patient. He based this on a study of five patients. Silverman experienced more

variation in the direction of closure when wax was used as the recording medium than when an intra-oral central bearing device was used to establish the vertical levels of the mandible. He distrusts the theory that the jaws close in an arc that moves about an axis. Consequently, says Silverman, when a change in the occlusion vertical dimension is necessary, the adjustment should not be made on the instrument. Instead, a new centric relation record should be obtained from the patient.

Another controversial topic — the condylar determinants of occlusal patterns — received support from Aull.⁴⁴ He asserted that condylar movements determine the direction of the inclined planes of the occlusal surfaces. Kurth⁴⁵ disagreed with this view. He contended that the teeth determine the direction of the condylar path.

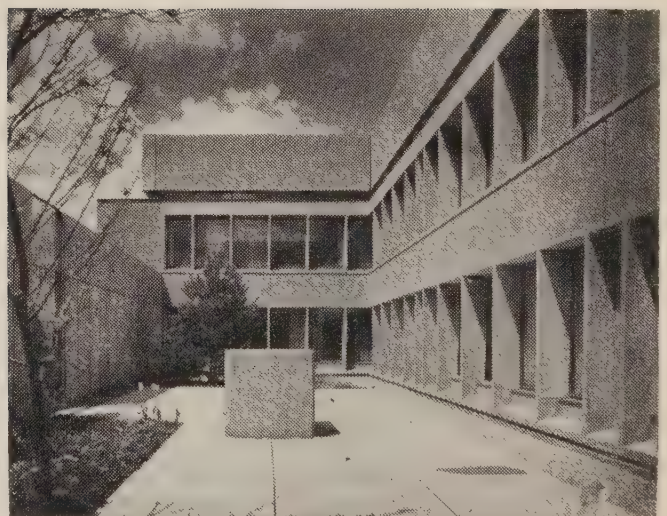
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Toronto, the site of the 1967 CDA-ODA centennial convention, is the home of York University. The Steacie Science Library, named in honour of a former president of the National Research Council of Canada, is one of the campus' impressive buildings.



The Association

CDA Proposes Hospital-Medical-Dental Association Liaison Committee

The Canadian Dental Association has recommended formation of a liaison committee with representation from the Canadian Hospital Association, the Canadian Medical Association and the CDA. In a brief submitted March 1 to the Aims and Objectives Committee of the Canadian Hospital Association, the CDA said such a liaison group would facilitate "discussion and understanding of problems of mutual concern and provide a vehicle for resolving differences of opinion before inter-professional frictions develop." The liaison committee could also explore opportunities for co-ordinated activity by the three associations, the CDA suggested.

In relations with governments, the CDA urged the hospital association to take the leadership in forming a council of related national health associations. Separate submissions from individual associations are less effective than views on which there is combined agreement by member associations, said the dental association brief.

The CDA also declared its readiness to assist the CHA in organizing training programs for hospital dental services and establishing a clearing house for hospital employment opportunities, internships, seminars and workshops.

With an eye to the future, the CDA suggested that national health associations should intensify their role in planning for future health facilities and personnel. This responsibility should not be left entirely to government agencies. National health associations should be the prime source of information on plant and personnel requirements and capabilities.

They should also evaluate criteria established by government planners. Since the hospital is the centre of community health care, the CDA suggested that the CHA become a focal force in co-ordinating the planning activities of other national health associations.

The three page CDA brief incorporates the views of the Association's Hospital Services Committee.

Canada and the Provinces

Education Fund Awards Seven Fellowships Worth \$8,200

Five new fellowships, totalling \$6,200, for training dental teachers have been awarded through the program of the Canadian Fund for Dental Education. Recipients and the amounts of their awards are: Denis Carpentier, Montreal, \$1,500; A. H. Ervin, Dartmouth, Nova Scotia, \$1,000; J. P. Sapp, Halifax, \$1,200; Gordon Williams, Montreal, \$1,500, and M. D. Jones, Edmonton, \$1,000.

Dr. Carpentier will pursue graduate training in oral pathology at Indiana University. Dr. Sapp will take similar courses at the University of Michigan. Doctors Ervin and Jones will take graduate training in prosthodontics. Dr. Ervin will study at Ohio State University while Dr. Jones will enrol at the University of Indiana. Dr. Williams will take graduate training in periodontics at Boston University.

Grants to the value of \$2,000 were renewed or awarded to two other graduate students. They are: K. H. Wright, Montreal, who is a current CFDE fellow taking graduate studies in periodontics at

the University of Toronto, and J. G. Blackmer, Saint John, New Brunswick, who is completing graduate training in dental public health at the University of Michigan.

The education fund again awarded unconditional grants of \$500 to each Canadian dental school. Monies from these grants are used at the discretion of the respective deans.

"We have now committed \$12,700 for fellowships and grants to dental schools," CFDE Chairman J. D. McLean observed, adding that the Fund "anticipates spending \$20,000 this year."

CFDE was established in 1962 to aid dental education, assist dental schools, promote scholarships and student loans and help recruit new students for Canada's dental schools. Information about teacher training fellowships may be obtained from the Secretary, CFDE, 234 St. George St., Toronto 5, Ontario.

Advocate Registry of Foreign Graduate Students in Canada

Ottawa should establish a registry of all foreign dentists, physicians and nurses receiving graduate training in Canada. This recommendation emerged from an October 17, 1966 inaugural meeting of the federal government's National Advisory Committee on International Health. Such a registry, said the committee, would help in assessing the problem of foreign trainees who remain in Canada after the conclusion of their studies instead of returning to their country of origin. The recommendation relates mainly to students who are not bound by commitments or contracts with their own governments.

The committee also recommended establishment of a national registry for training opportunities in Canada. The purpose of this registry would be to provide answers for enquiries from abroad.

In other actions, the committee recommended that:

Canadian participation in overseas education should be clearly identifiable as Canadian, and

There should be security of tenure for Canadian university teachers who accept temporary foreign assignments.

The National Advisory Committee on International Health is composed of representatives from eight national medical, nursing and dental organizations. CDA Secretary W. G. McIntosh is the dental member of this committee.

Ottawa Restores Equipment Depreciation Write-off Rate

Capital cost allowance write-off rates on dental equipment, which were cut in half under income tax regulations introduced in March 1966, have been restored to their former level. The interim reduced rates, originally intended to run until October 1, 1967, were discontinued by Order-in-Council PC1967-533 dated March 21. Details are contained in the following statement by Finance Minister Mitchell Sharp published in the March 22 edition of *Hansard*:

"In the budget last March it was announced that a regulation under the Income Tax Act had been passed to provide that capital assets of certain classes acquired in the period after the date of the budget but before October 1 of this year would be subject to deferred capital cost allowances. This action was intended to serve as a restraint upon capital expenditures at a time when these were increasing at excessive levels.

The present Order-in-Council which I am tabling changes from October 1 to April 1 of this year the date at which this period comes to an end. Consequently property acquired after March 31 will not be subject to the deferred capital cost allowances provided for in the regulation last year."

International Items

Britain Investigates Professional Practices

The British government on January 30 began a sweeping investigation of restrictive practices in the professions. Included in the probe are the fixing of fees, requirements for entering a profession, limitations on services, and other practices. Physicians, dentists, lawyers, accountants, veterinarians, pharmacists and architects are likely to be included in the investigation.

Practices under the National Health

Service are to be excluded from the enquiry. The Monopolies Commission which will handle the probe is expected to enquire into possible fee splitting. It will also enquire into the situation wherein medical specialists refuse to see patients except on the referral of a general practitioner. Officials also want to know more about professional entrance examinations and the effect of having these tests prepared by professional bodies rather than by the government.

US President Urges Pilot Dental Program for Children

President Lyndon B. Johnson on February 8 called for new legislation to authorize a pilot program of dental care for 100,000 American children in areas of acute poverty. The president's reference to children's dental needs also called for expanded training for dental assistants.

American Dental Association President W. A. Garrett, commenting on President Johnson's recommendations, said the ADA is pleased with the president's intent to join the dental profession in attempting to remedy the "appalling rate of dental disease among needy children." He added that the ADA is willing to discuss the proposed program at the earliest possible moment.

ADA Proposes New Recognition Program for Dental Laboratory Technicians

The American Dental Association's Council on Dental Education has proposed a new national program of recognition for individual dental laboratory technicians which would be conducted jointly by the council and by the Joint Commission on Accreditation of Dental Laboratories (an agency established in 1963 and sponsored by nine member dental organizations including the American Dental Association, American Association of Dental Schools and American Association of Dental Examiners).

The proposal, announced at the Conference on Dental Laboratory Relations, held February 1-2 at ADA headquarters, calls for establishment of a national vol-

untary registry for dental laboratory technicians.

Illinois Offers Dental Licensing Reciprocity

The Illinois State Board of Dental Examiners and the Department of Registration and Education have offered reciprocal licensing agreements to all United States dental licensing jurisdictions. By this action, Illinois will establish reciprocity with all states which grant like reciprocity to the state of Illinois.

"This policy," says an editorial comment in the *Journal of the American Dental Association*, "represents the first broad effort on the part of a dental examining board to promote freer movement of dentists from state to state. It represents a deep concern over the less-than-optimum utilization of dental manpower imposed by the present systems of state dental licensure. It is refreshingly exemplary."

New York's Guggenheim Clinic to Close

The Murry and Leonie Guggenheim Dental Clinic in New York City, which has given 36 years of community service, will close soon because officials feel that dental care provisions under recent extensions to United States social security legislation renders the clinic unnecessary.

One of the greatest of all philanthropic dental health endeavours, the Guggenheim Clinic in recent years has provided treatment for 35,000 to 40,000 children annually.

The clinic, which has 83 dental chairs, was founded by the late Murry and Leonie Guggenheim. The core of the staff consists of 79 interns who are supervised by eight attending dentists and 22 supervisors.

Start Three Year Project to Strengthen WHO Dental Program

The American Dental Association Research and Educational Foundation has

received \$12,500 as the first step in a three year program to strengthen the dental program of the World Health Organization. According to Harold Hillenbrand, secretary of the American Dental Association, the project will provide \$75,000 in initial support for a global epidemiological program to be conducted by WHO's dental health unit. After 1969, the program will be sustained solely by WHO.

The program will provide such elements as methodology for dental surveys used by the dental profession for the International Classification of Diseases, consolidation of existing epidemiological information on dental and oral disease, international training courses on dental epidemiology and the collection and analysis of dental morbidity statistics.

Implant Course in Paris July 6-8

The International Research Centre for Implants in Dentistry, Paris, France, offers a three day course in 'Implantology' July 6-8. This limited attendance course, to be given at the Lariboisière Hospital, will cover subperiosteal and endosseous techniques, including spiral, thin ridge, pin and transfixation implantation methods. The enrolment fee is \$200. Early enrolment is advisable and applications may be sent to R. Cherchève, 5 Avenue de l'Opéra, Paris 1er, France, or to Leonard Linkow, 30 Central Park South, New York, NY 10019, USA.

Dental Organizations

ODA Board Elects Committees

The newly elected Board of Governors of the Ontario Dental Association has met twice this year—on January 6 and February 11-12. N. A. Mancini, Hamilton, was elected chairman of the Board. K. F. Pownall and W. E. Jackson, both of Toronto, are respectively secretary-treasurer and business manager.

Named as committee chairmen were: E. A. White, Toronto, Benevolence Committee; I. Hrabowsky, St. Catharines, Con-

stitution and By-laws Committee; D. O. McIntyre, Toronto, 1968 ODA Convention Committee; K. W. Davey, Toronto, Dental Public Health Committee; Gunnar Lie, Weston, Dental Services Committee; E. G. Sonley, Willowdale, Committee on a Children's Dental Health Plan (this is a subcommittee of the Dental Services Committee); R. A. Hugill, Toronto, Insurance Committee; W. J. McColeman, Toronto, Publications Committee; V. A. Herron, Orillia, Public Relations Committee; E. J. Siegel, Toronto, Special Committee on Tax Equity; W. J. Spence, Toronto, Nominating Committee; and J. A. Guest, London, Research and Education Committee.

Nominated as representatives to the Canadian Dental Association were W. G. Bruce, Kincardine; J. D. Purves, E. J. Siegel and W. J. Spence, Toronto; and J. B. Taylor, London.

J. E. Durran, Hamilton, J. H. Moyle, Brantford, and J. Zuck, Weston, were named representatives to the Special Committee on Denture Service of the Royal College of Dental Surgeons of Ontario.

Dr. Skea Named President of Thunder Bay Assn.

G. B. Skea of Fort William, Ontario, was recently named president of the Thunder Bay Dental Association. Other officers elected with Dr. Skea are: B. E. Aris, Port Arthur, vice-president; S. Bresalier, Fort William, secretary; and D. A. C. Johnson, Port Arthur, treasurer. D. I. LeCocq of Fort William is in charge of dental public health.

Niagara Peninsula Assn. Elects Officers

Bernard Blackstein of Niagara Falls was installed as president of the Niagara Peninsula Dental Association when that organization held its annual meeting in Port Colborne. He succeeds K. I. Carroll of St. Catharines. Other officers elected with Dr. Blackstein were: C. J. Osadetz, St. Catharines, president-elect; M. P. Lococo, Niagara Falls, secretary; C. E. Steele, Wel-

land, treasurer; G. K. Chapman, Fort Erie, archivist; and Ivan Hrabowsky, St. Catharines, delegate to the Ontario Dental Association. Named as directors were Alex Bodnarchuk of St. Catharines and E. C. P. Henderson of Welland. K. M. Phillips, Welland, was installing officer.

Alberta Hygienists Elect

Janice Crawford of Edmonton was installed as president when the Alberta Dental Hygienists' Association held its annual meeting recently. She succeeds Judy Holland of Edmonton.

Elected with Miss Crawford were: Joan Conklin, Edmonton, president-elect; Jean Haw, Edmonton, secretary; and Louise Forcier, Edson, treasurer.

Committee chairmen include: Ann MacIntosh, Edmonton, Education and Recruitment; Joy Tangen, Edmonton, Constitution; Linda Risdon, Edmonton, Nominating; and Louise Forcier, Membership. Darlene Thomas of Edmonton is acting chairman of the Newsletter Committee.

Canadian Dental Schools

Propose New Dental School at Laval University

A new dental school should be established at Laval University in Quebec City to begin graduating dentists about 1975. This is the principal recommendation contained in a recent report prepared for the Association of Quebec University Presidents and Principals. The report outlines a step-by-step plan which concentrates initially on the recruitment and education of staff required for the proposed new school. During this period, says the report, existing dental schools at McGill and Montréal Universities will undertake and complete their own expansion programs, permitting the establishment of a new school in Quebec City in time for the proposed 1975 target date.

Authors of the report are: Gérard Girard, secretary, Faculty of Medicine, Laval University; J.-P. Lussier, dean, Faculty of

Dental Surgery, Université de Montréal; James McCutcheon, dean, Faculty of Dentistry, McGill University; and Gustave Ratté, representative of the College of Dental Surgeons of the Province of Quebec.

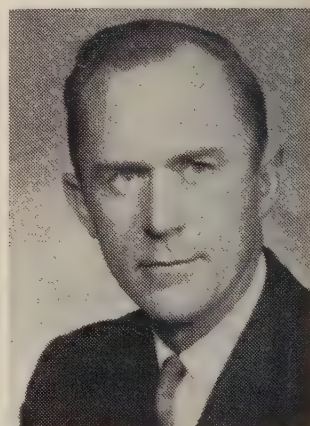
Six New Appointments at Western U

Dean W. J. Dunn of the Faculty of Dentistry, University of Western Ontario, London, has announced the following new full-time appointments effective July 1:

Brig. K. M. Baird, former Director General of Dental Services for the Canadian Forces, has been appointed associate professor and director of clinics. Born in Ottawa, Brig. Baird graduated from the Faculty of Dentistry, University of Toronto, in 1935. Following a year at the Forsyth Dental Infirmary in Boston, he returned to Ottawa where he practised until 1939 and then joined the Canadian Dental Corps. Brig. Baird remained with the armed forces after the war eventually becoming the senior officer of the Royal Canadian Dental Corps. He was a governor of the Canadian Dental Association for the past three years.



K. M. Baird

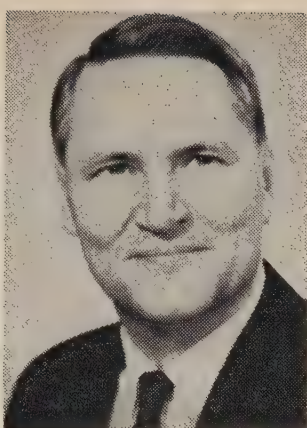


W. H. Feasby

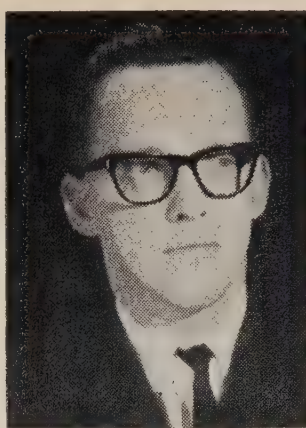
W. H. Feasby, Winnipeg, has been named professor and chairman of the Department of Paediatric Dentistry. A native of southwestern Ontario, Dr. Feasby was born in St. Thomas. He graduated from the Faculty of Dentistry, University of Toronto, in 1943 and served in the Canadian Dental Corps until 1946. Dr. Feasby was in general practice in St. Catharines until 1951 and conducted a



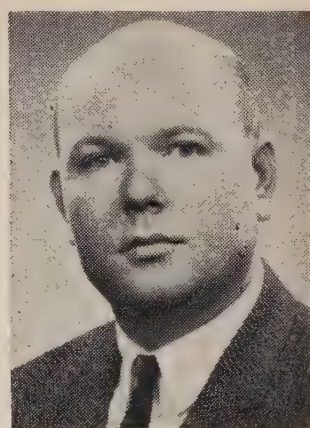
L. N. Johnson



A. G. Parnell



J. E. Ryan



W. R. Teteruck

paedodontic practice in Hamilton from 1952 to 1961. A former chief of dentistry at Hamilton's Chedoke General and Children's Hospital, Dr. Feasby also served on the research staff of the Burlington Orthodontic Research Centre from 1953 to 1961. In 1961 he was appointed associate professor and head of paedodontics at the Faculty of Dentistry, University of Manitoba. Since 1962 he has also been chief of dentistry of the Winnipeg Children's Hospital.

L. N. Johnson, at present director of dental physical science in the College of Dentistry, University of Kentucky, will join the UWO Department of Restorative Dentistry as associate professor with responsibility for dental materials science. A native of Portland, Oregon, Dr. Johnson earned MS and BS degrees from Pacific University in Oregon and from the University of Oregon Medical School. He also holds a PhD (dental materials and metallurgical engineering) from the University of Michigan.

A. G. Parnell, Winnipeg, has been appointed professor and chairman of the Department of Oral Surgery. Following war service with the Royal Air Force from 1940 to 1945, Dr. Parnell attended the School of Dental Surgery of the Royal Dental Hospital of London, England, graduating in 1950. In 1953 he earned the fellowship in dental surgery of the Royal College of Surgeons of England. Dr. Parnell has held hospital and teaching appointments in oral surgery at the Royal Dental Hospital and at the University of Newcastle-upon-Tyne. Since 1965 he has been associate professor of oral biology and head of oral surgery in the Faculty

of Dentistry of the University of Manitoba. He also served as lecturer in the Department of Surgery of Manitoba's Faculty of Medicine. At present, he is head of the Department of Dentistry of Winnipeg General Hospital and consultant to the Winnipeg Children's Hospital.

J. E. Ryan, Winnipeg, has been named associate professor in the Department of Restorative Dentistry with responsibility for removable prosthodontics. Born in New Westminster, British Columbia, Dr. Ryan graduated in dentistry from the University of Washington, Seattle, in 1960 and earned an MS degree in prosthetic dentistry at Ohio State University. Dr. Ryan has been, since 1963, associate professor in the Department of Prosthodontology of the University of Manitoba.

W. R. Teteruck, appointed associate professor in the Department of Restorative Dentistry, will be responsible for fixed prosthodontics. A native of Toronto, Dr. Teteruck earned a DDS degree in 1961 from McGill University, Montreal, and an MSD degree in 1963 from Indiana University. At present, Dr. Teteruck is assistant professor in the Department of Fixed Prosthodontics, College of Dentistry of the University of Kentucky.

Royal Canadian Dental Corps

Two Canadian Dental Officers Visit Cyprus and the Middle East

Brig. B. P. Kearney, Director General of Dental Services for the Canadian Forces, and Lt.-Col. A. W. Brusso, senior pro-

curement officer for the Division of Dental Services visited United Nations contingents in Cyprus and the Middle East during March 1967.

Promotion

Canadian Forces Headquarters recently announced the following promotion:

N. H. Andrews: captain to major. Maj. Andrews is employed at the RCDC School, Canadian Forces Base Borden, Ontario.

Majors Small and Craig Retire

Majors E. J. C. Small and A. J. Craig retired in March from the Royal Canadian Dental Corps.

Following service in Canada and overseas during World War II, Maj. Small saw postwar service in Canada, Europe and the Middle East. He will make his home in Oakville, Ontario.

Maj. Craig served in Canada and in Europe following World War II. He was an instructor at the RCDC School, Canadian Forces Base Borden, for three years. Maj. Craig will continue his association with the Royal Canadian Dental Corps as a civilian dentist in the Ottawa clinic.

Economics

Alberta May Extend Insurance to Cover Hospital Oral Surgery

A proposed new Alberta Health Plan, to replace two existing provincial acts (The Treatment Services Act and The Alberta Medical Carriers Act), is expected to authorize oral surgery performed by dentists in hospitals.

An explanatory note at the beginning of the proposed new act states that: "... this Bill will establish The Alberta Health Plan which will replace the present health program under The Treatment Services Act consisting of The Alberta Medical Plan and The Alberta Extended Health Benefits Plan. Under the present program, medical services and extended

health services are provided under separate contracts. Under the new Plan medical services and certain dental and optometric services will be provided as the basic benefits under all contracts, and other health services may be provided as optional benefits. . . ."

Saskatchewan Dentist Incentives Paying Off

The shortage of dentists in Saskatchewan is being eased as a result of the provincial government's crash dental program, says Health Minister G. B. Grant.

Last year close to \$200,000 was spent on incentives in various forms to encourage dentists to locate in Saskatchewan. This is a decided increase over previous years, Mr. Grant pointed out. In 1959 only \$4,000 was provided in the form of dentist incentives. In 1964 the figure jumped to \$43,800 and each year since then incentives have been sharply increased.

One phase of the current program involves \$5,000 inducement grants to dentists to settle in areas of the province which have been designated as having acute shortages of dentists. Ten of these inducement grants have been distributed resulting in dentists locating in the following centres: Gravelbourg, Humboldt, Moosomin, Weyburn, Lloydminster, North Battleford, Melfort (two dentists), Assiniboia and Rosetown.

Find a Solution or Else . . .

Dentists have been told to find their own solution to the dental mechanics' problem in Manitoba if they don't want legislators to find a solution that may be unacceptable to them.

Saul Cherniak (NDP-St. Johns) told members of the Manitoba Dental Association January 21 that they can no longer ignore mechanics and leave it to the legislature to keep them out of the province. He said he feared that if the problem were solved by legislators, it would be done in a manner that would lower the standards that dentists are trying to maintain.

Meantime, a report which states that "dentists should retain full control of and be fully responsible for the oral health of the public" remains in the Manitoba legislature because it has never been officially released by the provincial government. Two years in the making by a special legislative committee, the report was tabled by Provincial Health Minister C. H. Whitney on April 5 last year. It was described on pages 388-9 of the June 1966 issue of the *Journal of the Canadian Dental Association*.

Dental Care Found Insurable; No Rush to Dentists Noted

Dental care is insurable, but making it available does not automatically start a stampede into dentists' offices. In fact, utilization of insured dental care benefits is fairly predictable, varying according to occupation, age, sex and residence.

This is one of many conclusions in a 400 page volume, *Insured Dental Care: A Research Project Report*, released March 23 by Group Health Dental Insurance, Inc. The study was largely based on analysis of records of two samples of more than 6,000 persons with a combined dental insurance exposure of 15,600 years. The records reflect the experience of subscribers to GHDI, an independent non-profit community plan offering prepaid, free-choice-of-dentist, fee-for-service dental care to employed groups and their dependants. The great majority of GHDI's 150,000 members reside in the Greater New York metropolitan area. GHDI has agreements with 5,000 participating dentists who provide service benefits by accepting GHDI fees; but enrollees may visit any licensed dentist and receive benefits.

Following are some additional findings of the study:

Insured dental care is used most by groups whose members elect to enrol and pay the premiums themselves. Groups which get dental coverage automatically as a fringe benefit or because they belong to certain unions and do not themselves pay the premiums do not rush to avail themselves of dental treatment despite removal of the cost barrier.

Workers in skilled or professional categories tend to utilize dental care services more than unskilled or semi-skilled workers.

Females receive more dental care at nearly every age.

Male subscribers are among the steadiest in avoiding dental services.

Paradoxically, the cost of insuring semi- or unskilled subscribers was more than had been supposed, even though utilization was low; conversely, the professional class, with user rate 41 per cent higher than the overall average, had costs only 14 per cent higher because of low per patient costs.

Fillings are always the most frequent type of service. Diagnostic and preventive services placed second, followed by extractions.

Dental Insurance Covers 3.1 Million Americans

According to the US Public Health Service, 3,089,900 Americans were covered by prepaid dental care at the end of 1966. Dental service corporations showed the greatest growth with the addition of 575,000 persons, an increase of 126 per cent. Corporations now cover 1,033,100 persons; commercial insurance companies cover 853,900; group practice plans cover 765,900, and all other mechanisms cover 437,000.

The number of available prepayment plans has risen considerably. In 1960, there were 155 prepayment plans and at the end of 1966 there were 632.

In addition to the 3.1 million persons covered by privately sponsored plans, some 10.8 million Americans in 21 states are currently eligible for dental services under Title XIX (US Social Security) Program, and some 533,000 children in the Head Start Program are also eligible.

Alberta District Society Recommends Expanded Duties for Assistants

In Alberta, the Northeastern District Dental Society passed the following resolution on January 14: "Resolved that dental assistants may perform certain intra-oral

procedures within the discretion of the particular practitioner involved, by his authority, and under his supervision. This would involve anything but the cutting of human tissue."

Fluoridation

No Rush for Fluoride Pills

Self-fluoridation has met a cool response on the Prairies generally except in cities such as Lethbridge and Calgary where fluoridation was rejected by voters.

According to H. E. Robertson, director of Saskatchewan's provincial laboratory, that province's program of dispensing fluoride tablets will be discontinued at the municipal level because "so few people are taking advantage of it." For the time being, however, tablets will continue to be available from the Saskatchewan health department.

In Alberta, C. L. Pearson, assistant director of local health services, says the demand for fluoride tablets and liquid has been "much less than in Saskatchewan." The public is indifferent, says Dr. Pearson, adding that most people prefer fluoridation in the water supply. The prospect of taking a tablet daily for years does not appeal to most people, he says.

Alberta's entire supply of three million tablets and 20,000 one ounce bottles of liquid fluoride has been distributed, according to A. T. Salter, director of provincial dental services. However, demand is far behind the supply available at health units and from municipal public health nurses.

Another Fluoridation Vote in Hamilton in '68

Hamilton residents will go to the polls again in December 1968 to vote on whether they wish to keep their water supply fluoridated — about 24 months following a favourable decision last December. This Ontario city is in the process of installing equipment at a cost of \$35,000 and officials expect the Hamilton water to be fluoridated by this summer.

Under Ontario law a municipal council is required to hold a plebiscite if 10 per cent of the voters request it. The new vote follows the submission of a petition signed by more than 22,000 Hamilton residents.

Barrie Turns Down Fluoridation

A proposal to fluoridate Barrie's drinking water was rejected by more than three to one in a plebiscite held March 20. Results showed 944 votes in favour of fluoridation and 3,069 against. Thirty-one per cent of the eligible voters turned out to vote in this Ontario city with a population of 24,000.

Public Health

BC Birthday Card Program Termed Successful

In British Columbia, a birthday card dental program for three year old children has "elicited response . . . far beyond expectation." According to Frank McCombie, the province's dental director, 60-70 per cent of all three year olds saw their family dentist in four of the seven communities where the card program was first organized. The children received free clinical and radiographic examinations at the discretion of the dentist. Most of them also received a topical fluoride application. Dr. McCombie gave two reasons for the success of the program: the quality and appeal of the greeting card coupled with a persuasive telephone follow-up. Birthday card programs for three year olds are expected to replace existing community preventive dental programs in BC communities with resident dentists, he said.

Research

J. B. Macdonald Named IADR President-Elect

J. B. Macdonald, Vancouver, who retires this year as president of the University

of British Columbia, was elected president-elect of the International Association for Dental Research at its 45th general meeting in Washington, March 16-19.

Attendance of more than 1,800 set a record for an IADR meeting. Almost 600 papers on latest advances in dental research were presented at the meeting.

NRC Awards to Toronto Faculty

Grants amounting to \$84,702 have been awarded by the National Research Council of Canada to nine University of Toronto dental faculty members for the year 1967-68. These awards will assist investigations ranging from studies of organic-inorganic interrelationship in developing enamel to mandibular growth direction in children.

Recipients and the amounts of their individual grants are: R. C. Burgess \$10,822, M. Goldner \$16,000, R. M. Grainger \$10,540, R. Hazelton \$1,450, M. C. Johnston \$11,450, M. A. Listgarten \$14,700, A. T. Storey \$9,950, C. D. Torneck \$4,490, and D. G. Woodside \$5,300.

Dr. Burgess was also awarded an NRC dental research scholarship and M. Goldner was awarded a dental research associateship.

Undergraduate dental awards went to E. I. Fedun, W. J. Fleming, R. P. Hamilton, J. Huang, R. A. Isaac, A. Kamin, J. Krawec, Miss J. Sajner, B. Shapero, W. Wilson, and A. Weisblatt.

Public health grant awards went to R. G. Ellis \$30,540, D. W. Lewis \$2,730, and G. A. Zarb \$1,650.

New Intra-Oral Bandage Termed Promising

Two University of Minnesota dentists have tested a new intra-oral bandage which adheres well to wet mucosal surfaces and provides effective protection for at least eight hours. Their findings were published in the September-October 1966 issue of *Northwest Dentistry*. The new material — Squibb Intra-oral Bandage — was tested on restorations, minor surgical wounds and lesions of the oral mucosa in 104 patients. After the

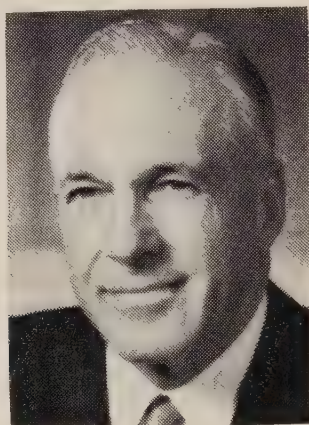
bandage was applied to wounds or lesions, patients generally experienced relief of pain and discomfort and healing progressed well. After application to restorations, the restorations set well without dimensional changes and maintained a high polish.

The bandage is an odourless compressed wafer about 4x6x $\frac{1}{8}$ inches and is enclosed between a polyethylene film backing and a layer of removable relief paper. The wafer is composed of gelatin, pectin, sodium carboxymethylcellulose and polyisobutylene. It adheres well to wet surfaces because of its hydrophylic properties. The wafer is applied to the affected region and held firmly in place for approximately one minute to initiate adhesion. The average duration of adhesion was longest—18 hours—when applied to the buccal or labial region, and shortest—10 hours—when applied to the palatolingual region. The bandage remained in place for 13 hours or longer in more than 70 per cent of the patients when it was applied over extractions. When placed on restorations, the bandage adhered for equally long periods of time in about 40 per cent of the patients. Conditions for which the bandage was used also included gingivectomy, gingivoplasty, denture sores, aphthous ulcers, irritated gingiva and other oral conditions. The wafer protects the wound, socket or lesion until the bandage is slowly dissolved or removed by the patient.

Awards and Honours

M. E. Bower, president of the Dental Company of Canada, was made an honorary fellow of the Canadian Section of the International College of Dentists at its convocation in Toronto May 13. The award was made in recognition "for conspicuous and meritorious service of the dental supply companies to the profession of dentistry." A former trustee and vice-chairman of the Canadian Fund for Dental Education, Mr. Bower, as representative of the dental supply industry, was closely associated with the development of this fund during its early years.

He continues to serve the cause of dental education through membership on the CFDE Public Information Committee.



M. E. Bower

V. E. Christou, Lethbridge, Alberta, was recently appointed to the Board of Governors of the University of Lethbridge. Dr. Christou has also been named a member of the Senate of the University of Calgary.

Deaths

Blair, Wilfrid Murdoch. 69. Calgary, Alberta. McGill University, 1925. 24-3-67. Survived by Gordon S. and John T. (sons).

Boothman, Alfred Johnston Harvey. 66. Vancouver. McGill University, 1931. 25-3-67. Survived by Ottilia May (wife); William James (son); Mrs. W. E. S.

Tennant (daughter); Tom (brother); and Mrs. K. V. Appleton and Mrs. Allan Hodgson (sisters).

Canning, Frank Wallace. 76. Toronto. Royal College of Dental Surgeons of Ontario, 1916. 24-3-67. Survived by Dr. Hugh (son); Miss Vera, Miss Maude, Mrs. H. Beck and Mother Barbara, IBVM (sisters); and Hugh (brother).

Carson, Joseph Edward. 58. Lethbridge, Alberta. University of Alberta, 1930. 15-3-67. Survived by Elizabeth Evelyn (wife) and Miss Ariel (sister).

Chagnon, Claude-Gérard. 67. Montréal. Université de Montréal, 1923. 9-3-67.

Harris, Edwin Stanford. 67. Vancouver. North Pacific College, University of Oregon, 1926. 31-3-67. Survived by Catherine (wife); Edward (son); and Mrs. Betty Ann Cooperrider (daughter).

Kurlander, Jonas E. 73. Shaker Heights, Ohio, USA. Western Reserve University, 1915. 14-4-66. Associate member CDA.

Langdon, William Rutherford. 28. Brantford, Ontario. University of Toronto, 1962. 8-3-67. Survived by Susan (wife).

Pineau, Adrien. 63. Matane, P. Québec. Université de Montréal, 1929. 24-10-66.

Sproule, Walter Kirby. 74. Vancouver. North Pacific College, University of Oregon, 1917. 18-3-67. Survived by Dr. John and Dr. William (sons) and William, George and Harold (brothers).

Surprenant, Albert E. 68. Montréal. Université de Montréal, 1923. 16-3-67.

Worried about a dentist shortage? Don't give it another thought. Mr. George Hees (PC—Northumberland) has the remedy. Simply crank out dentists like army officers in war time. Says the former trade minister: "During the past war, the war command and staff course, which in peacetime required a full two years, . . . was compressed into 16 weeks. This is the kind of thing we must do in respect to medical personnel. Those in training to become doctors, dentists, nurses and technicians must be paid and trained on a 12 months-per-year basis, using the facilities we have available continuously. . . ."—Gerald Waring, Canad. Med. Ass. J.

L'Association

Décès du Dr Bradley, ancien président de l'ADC

Le docteur Sydney W. Bradley est décédé le 20 février à Ottawa, à l'âge de 87 ans. Au cours de sa longue carrière consacrée à l'orthodontie et aux organismes dentaires, il a été secrétaire de l'ADC de 1916 à 1920 et président de 1922 à 1924.

Le docteur Bradley naquit à Hazeldean, Ontario, le 3 septembre 1879. Il fut enseignant avant d'entrer à l'école dentaire du Collège royal des chirurgiens dentistes de l'Ontario, où il reçut un diplôme en 1906. Il s'établit alors à Richmond, Ontario, où il demeura jusqu'à 1918, puis il se spécialisa en orthodontie et s'installa à Ottawa. Il ne tarda pas à gagner l'estime de ses confrères, et fut élu président de la Dewey Orthodontic Alumni et vice-président de la Northeastern Association of Orthodontists.

Brillant spécialiste, le docteur Bradley s'illustra également à la direction de plusieurs organismes dentaires. Il fut l'une des quatre personnalités dont le nom fait honneur à la charte de constitution de l'ADC de 1942. Outre ses fonctions au sein de l'association nationale, il fut président de l'Ottawa Dental Society, de l'Eastern Ontario Dental Association et, de 1945 à 1947, président du Collège royal des chirurgiens dentistes de l'Ontario.

La plus haute distinction de l'ADC — le titre de membre honoraire — lui fut conférée en reconnaissance de son dévouement à la profession, lors du congrès national de 1951. Il reçut également le titre de membre honoraire de l'Ontario Dental Association, en 1942, et de membre de l'American College of Dentists, en 1950.

Le secrétaire de l'ADC, le docteur W. G. McIntosh, a envoyé à la veuve du docteur

Bradley un télégramme où il déclarait que la profession dentaire avait grandi par suite du dévouement du docteur Bradley envers ses patients et envers les organismes dentaires, et que la profession lui doit une reconnaissance éternelle. Au nom des dentistes du Canada, nous offrons nos plus sincères condoléances à madame Bradley.

K. L. Croft devient directeur administratif de l'OFCA

Le secrétaire adjoint de l'Association dentaire canadienne, Kenneth L. Croft, a été nommé le 1er avril directeur administratif de l'Ontario Federation of Construction Associations. M. Croft était secrétaire adjoint de l'ADC depuis octobre 1957.

Au cours des neuf ans et demi qu'il a passés au service de l'ADC, M. Croft a été lié aux activités de tous les conseils et comités, y compris le Conseil des Gouverneurs. Il s'est occupé des congrès nationaux, de l'information du public, de la fluoruration (comme représentant de l'ADC auprès du Comité national pour la fluoruration de la Ligue canadienne de la santé), d'expositions scientifiques (comme représentant de l'ADC auprès de l'Expo-Sciences du Canada) et de l'enseignement dentaire (comme secrétaire du Fonds canadien pour l'enseignement dentaire).

M. Croft a fait ses études à l'Université Western Ontario. Il avait déjà occupé plusieurs postes importants dans le monde des affaires avant d'entrer au service de l'ADC.

Réunion du Conseil de l'enseignement

Lors de sa réunion des 8 et 9 mars, le Conseil de l'enseignement a approuvé le projet visant à établir un certificat na-

tional d'assistante dentaire tel que l'a recommandé le Comité des services auxiliaires (Journal d'avril, p. 234). Le projet sera soumis au Conseil des Gouverneurs le mois prochain à Toronto.

A l'ordre du jour de la réunion figuraient notamment: l'approbation de trois sortes d'internat dentaire, les recommandations relatives au Bureau national d'examen dentaire du Canada, les exigences de base des cours pour assistantes dentaires, le concours du mémorial de guerre, le projet d'une association canadienne des facultés dentaires, l'examen des dentistes étrangers, la reconnaissance des programmes de formation de spécialistes et de certains domaines de la pratique dentaire, la reconnaissance des facultés dentaires et les cours d'appoint.

La réunion du conseil avait été précédée par une conférence de deux jours des personnes s'occupant des bibliothèques dentaires du Canada.

L'ADC propose un comité de liaison entre les associations hospitalière, médicale et dentaire

L'Association dentaire canadienne a recommandé la création d'un comité de liaison où seraient représentées l'Association hospitalière canadienne, l'Association médicale canadienne et l'ADC. Dans un mémoire remis le 1er mars au comité des buts et des objectifs de l'Association hospitalière canadienne, l'ADC déclare qu'un tel organisme de liaison faciliterait "la discussion et la compréhension des problèmes d'intérêt mutuel et fournirait un moyen de régler les divergences d'opinion avant que des frictions interprofessionnelles n'apparaissent." Le comité de liaison pourrait également examiner la possibilité d'actions communes aux trois associations.

A propos des relations avec les gouvernements, l'ADC a recommandé à l'Association hospitalière canadienne de prendre l'initiative de la création d'un conseil des associations nationales de santé, car les vues que chaque association exprime séparément ont moins de poids que celles que formulent en commun plusieurs associations groupées.

L'ADC a également déclaré qu'elle était

prête à aider l'AHC à organiser des programmes de formation pour les services dentaires hospitaliers et à établir un bureau central pour les emplois offerts dans les hôpitaux, les internats et les séminaires.

L'ADC a suggéré que les associations nationales des professions de santé contribuent plus largement à la planification, tant en ce qui concerne les installations que les besoins en personnel. La planification ne devrait pas être entièrement laissée aux organismes gouvernementaux. Les associations nationales de santé devraient être la principale source d'information sur les besoins en locaux et en personnel. Elles devraient également évaluer les critères adoptés par les planificateurs gouvernementaux. Etant donné que l'hôpital forme le centre des soins de santé, l'ADC a suggéré que l'AHC joue un rôle de premier plan pour coordonner la planification des autres associations nationales de santé.

Le mémoire de trois pages de l'ADC contient les vues du Comité des services hospitaliers.

Au Parlement fédéral

Comparaison des salaires des dentistes et des médecins militaires

Le numéro du 13 février de *Hansard* publie le dialogue suivant entre l'Honorable Marcel Lambert (PC-Edmonton-Ouest) et l'Honorable Léo Cadieux (ministre adjoint de la défense nationale) au sujet du salaire des dentistes et des médecins dans les Forces armées canadiennes:

M. Lambert:

1. Selon la nouvelle échelle de salaire des Forces armées mise en vigueur le 1er octobre 1966, quels sont (a) le salaire de base, (b) le total du salaire et des indemnités versés à un officier dentiste au cours des cinq premières années de service?

2. Quels sont les taux de salaire et d'indemnités correspondants versés à un médecin militaire?

3. S'il existe des différences, sur quoi sont-elles fondées, si l'on tient compte du niveau et des dépenses de leur formation ainsi que de leur responsabilité respective dans l'exercice de leur fonction?

4. Y a-t-il eu des protestations ou des do-

l'éances exprimées dans les Forces armées au sujet de ces différences des échelles de salaire et, si oui, (a) a-t-on pris ces doléances en considération, (b) avec quels résultats?

M. Cadieux:

1. L'échelle révisée des Forces canadiennes, mise en vigueur le 1er octobre 1966, pour les officiers dentistes et médecins représente un salaire global. Les indemnités des officiers dentistes et celles des officiers médecins ont été abolies le 1er octobre 1966. Les taux pour les officiers dentistes ayant le grade de capitaine sont comme suit pour les cinq premières années: 1ère année, \$10,572; 2ème année, \$10,980; 3ème année, \$11,388; 4ème année, \$11,844; 5ème année, \$12,300.

2. Les taux correspondants pour les médecins militaires ayant le grade de capitaine sont, pour les cinq premières années: 1ère année, \$8,328; 2ème année, \$8,736; 3ème année, \$9,144; 4ème année, \$12,504; 5ème année, \$13,080. (Note: La plupart des médecins militaires qui demeurent dans les Forces canadiennes sont promus major après quatre ans et reçoivent un salaire annuel de \$14,160).

3. On a tenu compte des échelles de salaire des dentistes et des médecins employés dans la fonction publique lorsque les présents salaires des officiers dentistes et des officiers médecins dans les Forces canadiennes ont été établis.

4. Il y a eu des protestations de la part des médecins militaires subalternes au sujet du niveau des salaires pour les trois premières années de service. On examine actuellement la possibilité de réviser les salaires versés aux médecins militaires pendant les trois premières années de service.

Canada

On demande l'immatriculation des étudiants étrangers au Canada

Ottawa devrait établir un registre de tous les dentistes, infirmières et médecins étrangers qui poursuivent des études universitaires au Canada. Cette recommandation a été formulée le 17 octobre 1966, lors de la première réunion du Comité consultatif national sur la santé internationale. Selon le comité, un tel registre permettrait d'évaluer le problème des étudiants étrangers qui demeurent au Canada après la fin de leurs études, au lieu de retourner dans leur pays d'origine. La recommandation vise surtout les étudiants qui ne sont pas liés par un engagement ou un contrat avec leur propre gouvernement.

Le comité a également recommandé l'institution d'un registre des possibilités

de formation offertes au Canada. Ce registre permettrait de répondre aux demandes de renseignements des étrangers.

Par ailleurs, le comité a recommandé que

La contribution canadienne à l'enseignement dans les pays d'outre-mer soit clairement identifiée comme étant canadienne;

Les professeurs des universités canadiennes qui acceptent un poste temporaire à l'étranger bénéficient d'une garantie d'emploi à leur retour.

Ce Comité consultatif national sur la santé internationale est composé de représentants de huit organismes médicaux, infirmiers et dentaires. Le secrétaire de l'ADC, le docteur W. G. McIntosh, en fait partie.

Chronique internationale

Formation d'une société de pédodontie en France

Les dentistes français qui s'intéressent à cette discipline viennent de fonder une nouvelle organisation de pédodontie. La Société française de pédodontie a son siège social au 37 rue de Rivoli, à Paris. Le secrétaire en est M. M. Schouker.

Hygiénistes dentaires suisses

Après une étude qui a duré cinq ans, la Société suisse d'odonto-stomatologie vient de reconnaître le profession d'hygiéniste dentaire et les 22 cantons du pays peuvent maintenant établir la réglementation de cette profession.

L'étude préliminaire avait été entreprise par le professeur H. R. Mühlemann de l'Institut de médecine dentaire de l'Université de Zurich, et par le docteur R. H. Boitel, dentiste de Zurich, avec l'aide de l'Association américaine des hygiénistes dentaires. Les dentistes suisses, d'abord hostiles à l'idée d'employer dans leur cabinet des hygiénistes dentaires, ont changé d'avis à mesure que l'expérience suivait son cours.

Le succès de cette expérience est peut-être à l'origine de la décision prise en

Belgique en faveur d'un programme d'hygiène dentaire. Les dentistes italiens ont également exprimé leur intérêt envers un programme d'hygiène dentaire.

Congrès de l'ORCA, en Allemagne, du 17 au 19 juillet

L'Organisation européenne de recherches sur la carie et le fluor (ORCA) tiendra son congrès scientifique annuel à Würzburg, en Allemagne, du 17 au 19 juillet. Le thème principal de la rencontre sera la plaque dentaire. Pour tous renseignements, écrire au Secrétariat de l'ORCA, Pleichertorstrasse 32, 8700 Würzburg, Allemagne.

L'ORCA organisera également un symposium sur le fluor et l'hygiène dentaire, au Congrès mondial de la FDI à Paris. Ce symposium est prévu pour le mardi 11 juillet dans l'après-midi. Il portera notamment sur les sujets suivants: comment les fluorures réduisent-ils l'occurrence de la carie; le métabolisme des fluorures et leur innocuité; le rapport entre la fluoration de l'eau et la carie; la valeur préventive des autres méthodes augmentant l'absorption du fluor, hormis la fluoration de l'eau; la valeur préventive des procédés d'application topique de fluor. Pour tous renseignements sur le symposium de l'ORCA au Congrès mondial de la FDI, écrire à H. R. Held, 18 Passage du Terraillet, CH 1204 Genève, Suisse.

Le président des E.-U. recommande un programme pilote pour les enfants

Le président Lyndon B. Johnson a demandé le 8 février une nouvelle loi autorisant un programme pilote de soins dentaires pour 100,000 enfants de régions très pauvres. En faisant allusion aux besoins en soins dentaires des enfants, le président a aussi demandé une formation plus complète pour les assistantes dentaires.

Commentant les déclarations du président Johnson, le docteur W. A. Garrett, président de l'American Dental Association, a dit que l'association se félicitait que le président vienne en aide aux den-

tistes pour tenter de remédier à "la proportion alarmante d'affections dentaires chez les enfants nécessiteux." Il a ajouté que l'ADA était prête à discuter du projet le plus tôt possible.

Le nouvel immeuble de l'ADA est presque entièrement occupé

Un an environ après l'inauguration de son nouveau siège social de 23 étages à Chicago, l'American Dental Association annonce que presque tous les locaux disponibles ont été loués.

Le 15 janvier, 99 pour cent de la superficie des 12 étages à louer avaient trouvé preneur. Près de 85 pour cent en était déjà occupé par les locataires. Ces locaux administratifs ont été loués rapidement car l'immeuble est sis au voisinage immédiat du "Magnificent Mile" de l'avenue Michigan, dont la conception architecturale est célèbre.

Parmi les 61 locataires de l'immeuble de l'ADA, on compte 10 organismes dentaires nationaux ou internationaux. L'American Dental Association occupe elle-même sept étages, réservés à l'administration et à la recherche. Le rez-de-chaussée constitue un hall, le deuxième étage est occupé par les restaurants et les auditoriums, deux autres étages sont réservés à l'entretien et au chauffage.

L'ADA propose un nouveau programme de qualification des techniciens de laboratoire dentaire

Le Council on Dental Education de l'American Dental Association a proposé un nouveau programme national de qualification pour les techniciens de laboratoire dentaire. Ce programme serait dirigé conjointement par ce conseil et par la Joint Commission on Accreditation of Dental Laboratories (organisme fondé en 1963 et groupant neuf organisations dentaires, dont l'American Dental Association, l'American Association of Dental Schools et l'American Association of Dental Examiners).

Le projet qui a été annoncé lors de la conférence sur les relations avec les laboratoires dentaires, tenue les 1er et 2

février au siège social de l'ADA, demande que soit créé un enregistrement national et volontaire des techniciens de laboratoire dentaire.

Modernisation des facultés dentaires américaines

Au cours des deux ou trois prochaines années, de nombreuses facultés dentaires américaines seront reconstruites ou rénovées avec l'aide de subventions du gouvernement. Ces facultés, qui sont maintenant surchargées, démodées et sous-équipées, pourront à l'avenir former un plus grand nombre de dentistes.

Les travaux de modernisation ou d'agrandissement ont déjà commencé ou vont commencer dans 17 facultés dentaires. De plus, deux universités qui n'en possédaient pas construisent des facultés dentaires entièrement neuves.

Un porte-parole du US Public Health Service a déclaré que les dernières subventions accordées aux facultés dentaires des universités de Porto Rico et de Caroline du Sud portent à 19 le nombre de facultés recevant une aide fédérale pour leurs projets de construction. Les travaux sont pratiquement terminés pour trois d'entre elles: celles de l'université du Pacifique (San Francisco), de l'université de Pittsburgh et de l'université de Californie (Los Angeles). La faculté dentaire de l'université de Pennsylvanie a achevé la première tranche de travaux, la faculté de l'université du Nebraska a mis les siens en route.

A l'université du Connecticut, une faculté dentaire nouvelle — la première dans cet état — sera construite avec les subventions. L'université de Floride et le Medical College of Georgia doivent également construire une faculté dentaire. Des travaux supplémentaires de reconstruction ou de rénovation sont prévus à l'université Western Reserve, aux universités du Michigan, de Pittsburgh, du Nebraska, de Caroline du Nord, de Georgetown, à l'université Loyola de Chicago, à l'université du Missouri (à Kansas City), à l'université Emory, ainsi qu'aux universités de Porto Rico, de Louisville et du Maryland.

Depuis le début du programme, 25

facultés dentaires ont demandé en tout \$87.3 millions de subventions à la construction. Sur ce chiffre, \$62 millions ont été accordés et investis. Le reste des subventions demandées, qui s'élève à \$25.3 millions, sera probablement approuvé avant la fin de l'année.

Construction d'un nouvel édifice à la faculté dentaire de Boston

La construction d'un nouvel édifice de quatre étages pour la Boston University School of Graduate Dentistry a commencé au mois d'avril. Le programme d'études de cette faculté est unique en son genre, puisqu'il consiste en cours de deux et trois ans qui conduisent à la maîtrise en sciences dentaires et préparent les dentistes aux carrières de l'enseignement, de la recherche, et à la pratique d'une spécialité.

La School of Graduate Dentistry fait partie du Boston University Medical Centre, et dispense l'enseignement post-universitaire en chirurgie buccale, orthodontie, périodontie, pédodontie, pathologie buccale, endodontie, prosthodontie et dentisterie préventive.

Cours post-universitaires à l'université Temple (Philadelphie)

A partir de septembre 1968, la Faculté de chirurgie dentaire de l'université Temple offrira des cours post-universitaires conduisant à des certificats de spécialisation en endodontie, chirurgie buccale, orthodontie, prothèse partielle, pédodontie et périodontie. Adresser les demandes de renseignements à G. E. Green, Secretary, Graduate Committee, Temple University School of Dentistry, 3223 North Broad Street, Philadelphia, Pennsylvania 19140, USA.

Organismes dentaires

Le Dr Staples devient président du Montréal Dental Club

Lors de sa réunion annuelle, le 23 janvier, le Montreal Dental Club a investi son nouveau président, le docteur P. C. Staples.

Il succède au docteur R. S. Edmison.

Les autres membres du bureau sont les docteurs G. D. Armstrong, vice-président, E. C. Hickey, secrétaire, N. I. Hanna, trésorier, et A. R. Ramsay, historien archiviste. Ont été nommés directeurs les docteurs J. T. Elo, F. E. Shamy, C. A. Casey, R. W. Faith, M. Hébert et H. J. Smart.

L'Association du Manitoba institue un programme de lutte contre la carie

Selon un article paru dans le *Winnipeg Tribune* du 26 février 1967, l'Association dentaire du Manitoba offre au public un programme de traitement au fluor qui est unique en Amérique du Nord.

L'équipement nécessaire et des instructions spéciales sur le traitement au fluor ont été distribués aux dentistes manitobains. Au moins 150 d'entre eux se sont déclarés intéressés par le programme, qui comporte trois phases. La première phase consiste à consommer de l'eau fluorée (90 pour cent des Manitobains en disposent), qui réduit de 65 pour cent les risques de carie. Les deuxième et troisième phases diminuent de 25 pour cent les risques de carie qui subsistent, d'après le docteur C. R. Castaldi, professeur de dentisterie opératoire à l'Université du Manitoba. Au cours de la deuxième phase, le dentiste applique tous les six mois une pâte à prophylaxie au fluor. La troisième phase consiste à badigeonner les dents tous les six mois avec une solution spéciale de fluor, ce qui devrait réduire d'un autre 25 pour cent les chances de carie.

Facultés dentaires canadiennes

Six nominations à l'Université Western

Le docteur W. J. Dunn, doyen de la Faculté de chirurgie dentaire de l'Université Western Ontario, à London, annonce la nomination de six nouveaux professeurs permanents à partir du 1er juillet:

Le brigadier K. M. Baird, ancien Directeur général des services dentaires des

Forces canadiennes, est nommé assistant professeur et directeur de cliniques.

Le docteur W. H. Feasby, de Winnipeg, est nommé professeur et chef du département de pédodontie. Le Dr Feasby a exercé la pédodontie de 1952 à 1961, à Hamilton. Il a également été membre du Centre de recherche en orthodontie de Burlington, de 1953 à 1961. Il avait été nommé chef du département de pédodontie à la Faculté de chirurgie dentaire de l'Université du Manitoba en 1961.

Le docteur L. N. Johnson, actuellement directeur de l'enseignement des sciences physiques dentaires à la Faculté de chirurgie dentaire de l'Université du Kentucky, entrera au département de dentisterie restaurative de l'UWO comme assistant professeur, responsable des cours sur les matériaux dentaires.

Le docteur A. G. Parnell, de Winnipeg, a été nommé professeur et chef du département de chirurgie buccale. Il était depuis 1965 professeur adjoint de biologie buccale et chef du département de chirurgie buccale à la Faculté de chirurgie dentaire de l'Université du Manitoba. Il a également été chargé de cours au département de chirurgie de la Faculté de médecine du Manitoba.

Le docteur J. E. Ryan, de Winnipeg, a été nommé professeur adjoint au département de dentisterie restaurative, pour les cours sur les prothèses amovibles. Depuis 1963, le Dr Ryan est professeur adjoint au département de prothèse de l'Université du Manitoba.

Le docteur W. R. Teteruck, nommé professeur adjoint au département de dentisterie restaurative sera chargé des prothèses fixes. Né à Toronto, diplômé de l'Université McGill de Montréal, le Dr Teteruk est actuellement professeur au département des prothèses fixes de la Faculté de chirurgie dentaire de l'Université du Kentucky.

Séminaire de dentisterie préventive à l'U de M

Le docteur Geneviève Roth, directrice du Département de dentisterie à l'Université de Missouri, Kansas City, était récemment l'invitée du Département de dentisterie préventive de l'Université de

Montréal. Spécialiste en périodontie, le docteur Roth a dirigé, à l'intention du personnel enseignant du Département, deux séminaires sur l'enseignement de la dentisterie préventive.

Corps dentaire royal canadien

Inspection du brigadier Kearney

Au cours du mois de février, le brigadier B. P. Kearney, directeur général des services dentaires a inspecté les cliniques du Corps dentaire royal canadien à la base des Forces canadiennes de Borden ainsi qu'à Clinton, London, Toronto, Trenton et Kingston, en Ontario.

Le brigadier Kearney a également assisté au Chicago Mid-Winter Dental Convention, du 5 au 8 février, accompagné du lieutenant-colonel W. R. Thompson.

Cours sur les soins d'urgence

Les lieutenants-colonels D. H. Hillier et G. E. Windsor, ainsi que les majors W. R. Collier, D. H. Skinner, T. D. Cobb, et D. J. Carmichael ont suivi un cours pour officiers sur les traitements d'urgence à l'Ecole du Corps dentaire royal canadien de la base de Borden, du 13 au 17 février.

Un officier d'hygiène dentaire publique collabore avec un sous-comité du ministère de la Santé

Le major J. V. P. Chatwin collabore avec un groupe consultatif du ministère de la Santé nationale et du Bien-être social qui modifie l'Index canadien d'hygiène dentaire selon un système recommandé par l'Organisation mondiale de la santé. Le groupe de conseillers (R. M. Grainger, de Toronto, président; Frank McCombie, de Victoria; W. C. King, de Halifax; T. L. Marsh et R. A. Connor, d'Ottawa) constitue le sous-comité des statistiques dentaires qui dépend du Comité consultatif de l'hygiène dentaire et buccale auprès du ministre de la Santé nationale et du Bien-être social.

Lors d'une récente réunion du sous-

comité, le major Chatwin a parlé des essais effectués à l'aide d'une nouvelle carte perforée pour les enquêtes sur l'hygiène dentaire de l'OMS. Le personnel du CDRC a effectué des essais dans deux provinces. Le Corps fournira au sous-comité les résultats d'une récente enquête conduite auprès des recrues par les équipes du CDRC.

Fluoration

Ironie du sort

Ponoka, ville de 4,000 habitants située à 40 milles au sud d'Edmonton, qui avait voté contre la fluoration l'automne dernier, bénéficiera tout de même d'eau fluorée. Le service d'eau doit en effet être alimenté par un nouveau puits dont l'eau révèle, à l'analyse, une forte teneur en fluorures naturels.

La fluoration est défaite de peu à Kingston

Kingston (Ontario) sera encore privée de la fluoration. Le service d'eau de la ville a été fluoré depuis le mois de mars de l'année dernière, mais une faible majorité a voté la suppression de la fluoration lors des élections municipales du 5 décembre. Un nouveau compte final ordonné par le juge Alan Campbell du comté de Frontenac a réduit à 178 voix l'écart entre les partisans et les adversaires de la fluoration, mais n'a pas modifié la décision.

Economie

Six compagnies peuvent offrir une assurance dentaire

On a dénombré six compagnies d'assurance ayant fait savoir qu'elles sont prêtes à offrir un régime d'assurance dentaire au Canada. Il s'agit de la Confederation, la Dominion Life, la Great West, la London Life, la Metropolitan et la Travelers. L'assurance dentaire de la Dominion Life

n'est accordée que comme partie d'une assurance plus vaste dont la prime collective totale doit être au moins de \$300 par mois. Les régimes de la Great West sont réservés aux groupes de 50 employés ou plus et ceux de la London Life aux groupes de 25 employés ou plus. Aucune de ces compagnies n'accorde d'assurance dentaire aux particuliers.

Succès des cliniques de prothèses en Colombie britannique

Les cliniques de prothèse fondées par les dentistes de Colombie britannique se sont révélées rentables, sur une période de dix mois en 1966. Leur budget comprend les dépenses de publicité. Les annonces publiées dans les journaux du samedi ont été beaucoup plus efficaces que les annonces radiophoniques. Celles-ci seront donc suspendues.

On a suggéré d'adresser aux cliniques les patients que la faculté dentaire de l'université de Colombie britannique ne peut pas prendre en charge. On demande également aux dentistes de la province d'y adresser les patients qui ne peuvent pas payer le prix normal des prothèses.

L'Alberta étendrait son assurance à la chirurgie buccale dans les hôpitaux

Un nouveau régime d'assurance albertaine, qui doit remplacer deux lois provinciales (The Treatment Services Act et The Alberta Medical Carriers Act) couvrira sans doute les opérations de chirurgie buccale effectuées dans les hôpitaux.

Une note explicative qui figure en tête de la loi proposée déclare que: "... celle-ci établira le régime d'assurance de l'Alberta destiné à remplacer le système actuel du Treatment Services Act, qui comprend l'Alberta Medical Plan et l'Alberta Extended Health Benefits Plan. Actuellement, l'assurance des frais médicaux et l'assurance à couverture étendue constituent des contrats distincts. Le nouveau régime assurera les soins médicaux ainsi que certains soins des dentistes et des optométristes à titre d'indemnités de base pour tous les contrats, tandis que

d'autres soins pourront être assurés à titre facultatif. . . ."

Une société de l'Alberta recommande un élargissement des tâches des assistantes

La Société dentaire du district du nord-est, en Alberta, a adopté le 14 janvier une résolution permettant de confier aux assistantes dentaires certaines tâches intrabuccales, selon le jugement de chaque dentiste, avec son autorisation et sous sa surveillance. Ces tâches ne pourraient toutefois pas comprendre l'incision de tissu humain.

Les Etats-Unis consacrent \$57,000 à des recherches sur l'attitude envers les soins dentaires

Le Public Health Service des Etats-Unis a accordé une somme de \$57,000 au Dr J. W. Howitt, du Service de pédodontie du Eastman Dental Center, à Rochester, pour étudier l'attitude du public envers les soins dentaires et les traitements préventifs.

En recommandant cette étude de deux ans, le US National Community Health Committee a reconnu la nécessité d'encourager le public à solliciter des soins préventifs, sous forme d'examen, de prophylaxies et d'application de fluor.

Les recherches du Dr Howitt ont pour but de mieux définir les facteurs qui empêchent les patients d'effectuer des visites préventives et de déterminer les mesures qui permettraient d'enrayer ou de corriger cette attitude négative.

Les soins dentaires sont assurables

Les soins dentaires peuvent être assurés, mais l'assurance n'entraîne pas automatiquement une ruée vers le cabinet du dentiste. En fait, on peut prévoir assez exactement la demande des services dentaires assurés, d'après la profession, l'âge, le sexe et le lieu de résidence.

C'est là l'une des conclusions d'un volume de 400 pages, *Insured Dental Care: A Research Project Report*, publié le 23 mars par la Group Health Dental

Insurance, Inc. Cette étude s'appuie principalement sur l'analyse des dossiers de deux échantillonnages de plus de 6,000 personnes, ce qui représente un total de 15,600 années d'assurance dentaire. Les dossiers sont ceux des membres de la GHDI, régime indépendant et sans but lucratif, couvrant les soins dentaires sur la base du prix du service et en laissant le libre choix du dentiste, pour les groupes d'employés et leurs ayants droit. La plupart des 150,000 membres de la GHDI habitent le Grand New York. La GHDI a passé un accord avec 5,000 dentistes qui dispensent leurs services au tarif de la GHDI; cependant l'assuré peut s'adresser à tout dentiste dûment enregistré, et recevoir les prestations.

L'étude aboutit également aux conclusions suivantes:

Les groupes dont les membres doivent s'inscrire et payer eux-mêmes la prime sont ceux qui utilisent le plus l'assurance dentaire. Lorsque les membres d'un groupe bénéficient automatiquement de l'assurance sous forme d'avantage marginal, ou parce qu'ils appartiennent à certains syndicats et qu'ils ne paient pas la prime eux-mêmes, ils ne réclament pas en masse les soins dentaires, même si le prix ne constitue plus un obstacle;

Les employés spécialisés ou professionnels ont tendance à utiliser l'assurance plus que ceux qui sont semi-spécialisés ou non spécialisés;

Les femmes demandent plus de soins dentaires, quel que soit leur âge;

Les hommes ont toujours tendance à éviter les soins dentaires;

Assurer les groupes semi ou non spécialisés coûte plus cher qu'on ne le supposait, même s'ils utilisent peu l'assurance. Par contre, chez les professions libérales dont le taux d'utilisation dépasse de 41 pour cent la moyenne générale, le prix de revient de l'assurance n'est guère plus élevé (14 pour cent), car le coût par patient est moindre;

Les services les plus demandés sont, dans l'ordre: les obturations, les services de diagnostic et de prévention, les extractions.

Le problème des rendez-vous au Labour Health Institute de St. Louis

Les rendez-vous manqués constituent un problème permanent au Labour Health Institute de St. Louis (Missouri). Le rapport annuel de l'institut signale qu'ils représentent une grave perte de temps et de travail. Un moyen qui se révèle efficace pour faire respecter les rendez-vous consiste à envoyer un rappel au délégué d'atelier trois jours à l'avance. Un autre moyen consiste à remettre au patient un dépliant de rappel indiquant la liste de tous les rendez-vous, ainsi que les heures du dentiste. Une mesure plus radicale a été adoptée, qui supprime tous les rendez-vous (sauf cas d'urgence) pendant six mois lorsqu'un rendez-vous a été négligé ou annulé sans raison.

Le rapport fait état de 39,571 visites et de 3,984 rendez-vous négligés pendant une période de 12 mois se terminant le 30 juin 1966.

L'institut a été fondé en 1945 par le Local 688 de l'International Teamsters' Union. Il offre une assurance médicale et dentaire complète aux adhérents et aux personnes à leur charge. Les soins dentaires sont dispensés à la clinique de l'institut.

Examen médical des dentistes au congrès de l'ADA

Les radiographies effectuées lors du congrès annuel de l'ADA à Dallas, en novembre 1966, ont révélé la présence probable d'une tumeur maligne, d'un anévrisme de l'aorte et de 18 cas de tuberculose. Un porte-parole de l'ADA a déclaré que 1,322 dentistes avaient subi l'examen médical, soit environ 22 pour cent des dentistes inscrits à la réunion.

Une première classification des résultats indique 67 cas où les résultats de l'analyse d'urine s'écartent de la normale, 340 cas d'hyperglycémie, 161 cas de dents incluses, 396 cas d'affection périodentaire modérée, 56 cas de maladie périodentaire grave, 99 cas de zones radiotransparentes interprétées comme étant un kyste ou un granulome, 29 cas de carie importante, 84 cas où la pression enregistrée au cours du test du glaucome est supérieure à la

normale et 356 électrocardiogrammes suspects.

Des 1,248 dentistes qui ont répondu à un questionnaire sur l'emploi du tabac, 471 ont déclaré en faire usage. Parmi les 777 qui n'en usent pas, 316 ont déclaré l'avoir déjà fait mais avoir cessé au cours des dernières années.

Recherches

Un antileucémique ferait "fondre" les cancers buccaux

Un médecin de University Hospitals, à Cleveland (Ohio) signale qu'une drogue utilisée pour traiter la leucémie chez les enfants fait "fondre" les cancers buccaux. Le docteur C. L. Kiehn explique, dans le numéro de janvier de la revue *Dental Abstracts*, que cet antileucémique — le méthotrexate — est administré à tous les patients opérés d'un cancer buccal à University Hospitals. Il souligne que l'emploi de cette drogue n'a pas augmenté le taux de survie à long terme des 31 cancéreux traités. Le chiffre de survie a été de 44 pour cent en moins de trois ans, et il approche donc du chiffre moyen de survie des malades opérés, qui est de 30 à 40 pour cent. Cependant, 78 pour cent des 31 patients ont survécu pendant les deux premières années. La récurrence du cancer buccal a donc été retardée au-delà de la moyenne ordinaire de 18 mois.

"Bien que la tumeur semble parfois avoir littéralement fondu, nous pensons qu'il ne serait pas justifié d'assumer qu'elle a disparu", écrit le Dr Kiehn. "Le plus souvent, il reste des cellules tumorales qui peuvent apparaître déformées, mais dont la viabilité finale ne peut pas être déterminée. Nous devons

aussi tenir compte du fait que l'atteinte locale peut être l'un des centres d'un processus multi-centrique, de sorte qu'un effet d'oblitération sur l'un des foyers risque de ne pas être totalement efficace sur les autres. Il se peut également que les ganglions lymphatiques cervicaux demeurent tumoraux par suite de l'insuffisance de la posologie."

Le Dr Kiehn explique que les 31 patients ont tous reçu 350 à 500 mg. de méthotrexate pendant sept à 10 jours, introduit dans l'artère carotide externe. Il y eut une réaction chez tous les patients. Les tumeurs diminuèrent, certaines guérissent, et la douleur fut réduite chez tous les patients. Chez 10 patients, la comparaison de biopsies prélevées après l'administration de la drogue et de tissus prélevés deux à six semaines plus tard au cours d'une opération, révéla que la tumeur avait disparu du foyer local.

Les meilleurs résultats furent enregistrés dans les tumeurs peu importantes, limitées aux surfaces latérales de la cavité buccale, et non traitées auparavant. Le méthotrexate fut moins efficace en présence de métastases dans les ganglions cervicaux, de lésions étendues du plancher buccal, de la région amygdalo-palatine, de la base de la langue ou dans la région latérale du pharynx.

Le Dr Kiehn ajoute que le dénominateur commun de l'efficacité est la précision de l'apport sanguin en tant que véhicule de la drogue. Les traitements antérieurs par irradiation ou chirurgie, les foyers tumoraux, les ulcérations ou l'atteinte de ganglions cervicaux dispersés, ne permettent pas d'obtenir une concentration utile de la drogue dans les cellules tumorales.

L'article, intitulé "Drug Infuses Hope in Oral Cancer" a été publié pour la première fois dans le numéro du 12 août 1966 du *Medical World News*.

Le fonds de la bibliothèque de l'ADC • La bibliothèque de l'Association dentaire canadienne rend service aux membres de l'Association en leur prêtant des volumes et des périodiques. L'acquisition de ces volumes et périodiques s'accomplit au moyen d'un fonds mis à la disposition de la bibliothèque. On accepte avec reconnaissance toute souscription venant des membres de l'Association. Toute somme souscrite peut être déduite de l'impôt sur le revenu.

Der Kinetor in der Kieferorthopädie (The Kinetor Appliance for Orthodontic Treatment)

Hugo Stockfisch. Heidelberg. West Germany, Dr. Alfred Huethig Verlag, 1966. 203 p. Illus. DM 42.—

There is a distinct difference in orthodontic philosophy as expressed in Europe and on the North American continent. This divergence has largely dictated the types of appliances in use. On these shores, multi-band appliances control individual tooth movements and lead, theoretically, to perfect alignment. The price paid is in the form of long chairtime procedures and a proportionately small percentage of treated cases. European orthodontists, on the other hand, prefer some form of removable acrylic biteplate. Here, chairtime per patient is at a minimum and fits in well with the desired objective of a reasonable, unsophisticated result for as many patients as possible.

This text describes another example of a family of removable appliances used with considerable success by European orthodontists. In the past we have been exposed to biteplates that are essentially static in construction. For instance, the monobloc is essentially in one piece; its purpose is to encourage tooth movement and jaw positioning. Dr. Stockfisch's appliance differs in that it is a biteplate of four sections, each in contact with the other and certainly not static in construction. Basically, it is an upper and lower acrylic appliance joined together in the occlusal areas. Both upper and lower portions are split along the midline. The upper two portions are joined by metal inserts, as are the lower portions. In addition, the upper component is fitted with an expansion screw. Most important is the use of a rubber tube section extending from cuspid to the mesial aspect of first molar on both sides. The rationale is that function causes the split portions to stimulate bone repositioning in three planes — transverse, sagittal and vertical. The author has termed his appliance the "Kinetor" to suggest that there is a kinetic energy supplied by the mandible, which in turn effects a repositioning of the bone support and hence the dental units. Certainly, it is an interesting and clever appliance.

Dr. Stockfisch uses most of his text to illustrate the various cases in which the Kinetor has been used. The results achieved appear to be truly remarkable. Cases that

appear to be hopelessly crowded protrusive problems are treated without extraction. Although Dr. Stockfisch indicates at the beginning of his text that not all cases are suited for these appliances, he does not reveal his method of selection. Apparently he employs his appliance solely for prognathic or protrusive type malocclusions. His decision on its use in a particular case seems to be based chiefly on his past clinical experience.

This text is written entirely in German. However, a fairly succinct description was published three years ago in a translated article in the *International Journal of Orthodontics* (2:24-32, July 1964).

Malcolm Yasny

Tooth Enamel

M. V. Stack and R. W. Fearnhead. Bristol, John Wright and Sons Limited, 1965. (Available from The Macmillan Co. of Canada Limited, Toronto) 219 p. Illus. \$11.75

During the past 10 years tooth enamel has come under intensive study by research workers interested in biological mineralization. Fifty of the most active researchers in the field met in London, England, in 1964 to participate in the First International Symposium on the Composition, Properties and Fundamental Structure of Tooth Enamel. The proceedings of that Symposium are excellently recorded in this book. The subject matter is presented in four sections: (1) composition and growth of the organic crystallites of enamel, (2) composition and fate of the organic components, (3) molecular structure of the organic matrix, and (4) structure and ultrastructure of intact mature enamel. Each section consists of a series of scientific papers, a vigorous and extensive discussion of the results and a final summary which shows how these findings extend or modify our previous knowledge of enamel. Many of the scientific papers are of high quality and describe, in considerable detail, the application of sophisticated scientific techniques to the study of enamel. This fact may discourage many casual readers but should attract students and teachers who wish to study specific aspects of enamel formation in greater detail than has hitherto been possible.

R. C. Burgess

announcements • avis

Canadian Dental Association

- 1968 **Vancouver**, June 27-29
1969 **Montreal**, June 5-7

Fédération Dentaire Internationale

- 1967 **Paris**, July 7-13
1968 **Varna**, Bulgaria, September 17-24
1969 **New York**, October 11-18

Other Meetings

Alberta Dental Association, at Calgary, June 2, 1967. G. W. Street, 301 Rideau Medical Building, Calgary, Alta.

Atlantic Provinces Dental Convention, at Moncton, June 7-10, 1967. R. B. De Ware, 48 John Street, Moncton, NB.

American Dental Society of Europe, at Monte Carlo, Monaco, June 27-30, 1967. Donald Derrick, 140 Park Lane, London W.1, England.

43rd Congress European Orthodontic Society, at Berne, Switzerland, July 1-5, 1967. Prof. P. Herren, Hirschengraben 6, 3011 Berne, Switzerland.

European Organization for Caries Research, at Würzburg, Germany, July 17-19, 1967. ORCA Secretariat, Pleichertorstrasse 32, 8700 Würzburg, Germany.

14th World Dental Congress, at Paris, France, July 7-13, 1967. J. Charon, 12 rue du Quatre-Septembre, Paris 2e, France.

British Dental Association, at Birmingham, England, July 24-28, 1967. J. N. Peacock, 64 Wimpole Street, London W.1, England.

L'Association dentaire de la province de Québec, à l'Hôtel Bonaventure, Montréal, 15-19 août, 1967. Léon Daigle, 3777 St-Urbain, Montréal, P. Qué.

Fifth Congress of the Dental Society of Iran, at Royal Tehran Hilton Hotel, Tehran, September 5, 1967. Dr. Navab, 82 Hafez Avenue, Tehran, Iran.

Northern Ontario Dental Association, at Senator Motor Hotel, Timmins, September 8-10, 1967. F. A. Pollon, 67 Pine Street South, Timmins, Ont.

Western Canada Dental Society, at Hotel Saskatchewan, Regina, October 8-11, 1967. A. W. Geisthardt, 533 Medical & Dental Building, Regina, Sask.

Montreal Dental Club Preconvention Seminar, at Queen Elizabeth Hotel, Montreal, October 28-29, 1967. M. Komarnicka, 4166 St. Catherine Street West, Westmount, P. Que.

Montreal Dental Club Annual Fall Clinic, at Queen Elizabeth Hotel, Montreal, October 30-November 1, 1967. M. Komarnicka, 4166 St. Catherine Street West, Westmount, P. Que.

Canadian Academy of Prosthodontics, at Queen Elizabeth Hotel, Montreal, October 29, 1967. W. G. Woods, Suite 1125, 123 Edward Street, Toronto 2, Ont.

American Dental Association, at Washington, DC, October 30-November 2, 1967. H. Hillenbrand, 211 East Chicago Avenue, Chicago, Illinois 60611, USA.

Academy of Dentistry (Toronto) Winter Clinic, at Royal York Hotel, Toronto, November 23, 1967. Mrs. R. Jones, 230 St. George Street, Toronto 5, Ont.

Greater New York Dental Meeting, at the Statler Hilton Hotel, New York City, December 4-8, 1967. G. E. Mullen, 51 East 42nd Street, New York, NY 10017, USA.

XVth International Meeting of Argentine Dental Association, at Hotel Provincial, Mar del Plata, Argentina, December 6-9, 1967. R. H. Canzani, 959 Junin, Buenos Aires, Argentina.

Vancouver and District Dental Society, at Hotel Vancouver, Vancouver, December 1967. W. R. Upton, Suite 325, 925 West Georgia Street, Vancouver 1, BC.

Postgraduate and Refresher Courses

Alberta • The Faculty of Dentistry, University of Alberta, offers a course in **DENTAL PUBLIC HEALTH AND PRIVATE PRACTICE — THE ROLE OF THE DENTIST AND THE DENTAL HYGIENIST**, August 18-19, 1967. The course will be oriented to the role of the dentist and the dental hygienist in community health programs. The topic will encompass the integrated role of persons in private practice and public health. The program will be developed through lectures, demonstrations and participation. Other topics to be covered will be a modified swab technique, aspects of patient education in preventive dentistry, and a short review of dental health education materials. The course is open to dentists and dental hygienists and will be under the direction of Margaret MacLean and B. P. Martinello, with D. F. Striffler as guest lecturer. Tuition fee \$30 per person (\$20 per person when two or more persons from the same employing agency register.) Enquiries and requests for application forms should be directed to the Division of Continuing Education, Faculty of Dentistry, University of Alberta, Edmonton, Alberta.

Alberta • The Faculty of Dentistry, University of Alberta, offers a course in **FUNDAMENTALS OF OCCLUSION**, August 21, 1967. The guest lecturer is Edward Green, Department of Periodontics, University of Michigan, who will discuss the basic concepts of occlusion and their application in clinical dentistry. Such topics as the physiology of occlusion, centric occlusion and function, principles of occlusal adjustment, and solving of occlusal problems will be developed. Tuition fee \$25. Enquiries and requests for application forms should be directed to the Division of Continuing Education, Faculty of Dentistry, University of Alberta, Edmonton, Alberta.

Alberta • The Faculty of Dentistry, University of Alberta, offers a course in **FUNDAMENTALS OF OCCLUSION**, August 22-23, 1967. This is a limited attendance course which will follow the course given on August 21. Dr. Green will be the lecturer at this participation course which will include the technique of functional occlusal adjustment, the demonstration of functional analysis and study mounting and adjustment procedures. Participants will be assisted in accomplishing these procedures. Tuition fee \$65. Enquiries and requests for application forms should be directed to the Division of Continuing Education, Faculty of Dentistry, University of Alberta, Edmonton, Alberta.

All are needed by each one

Expanding public interest in the provision of health services, as CDA Past President J. P. Coupland has pointedly remarked on several recent occasions, thrusts new challenges at the health professions and imposes commensurate responsibility upon the dental profession. To discharge this obligation, Canada's dentists need a strong and vigorous national association. Support for this view is reiterated in the following editorial comments reprinted from recent issues of three provincial dental publications:

CAN WE DO LESS THAN GIVE FULL SUPPORT?

... In the April [1965] issue of the *Journal of the Canadian Dental Association* we are told that it may be necessary to reduce the editorial content of the publication in order to make ends meet. It seems the cost of publishing the Journal exceeds the advertising and subscription revenue by about 25 per cent. Previously, the general fund of the Association picked up the tab for the balance. However, this may not continue as the Association's expenditures have been exceeding the revenue since 1964.

What a deplorable state of affairs! Is it possible that an organization of some 6,215 Canadian dentists cannot support a national, monthly publication? This publication keeps the profession informed not only on clinical and technical developments, but on the business of its own association. The necessity of such a journal needs no explanation.

In a letter to the secretary of the Nova Scotia Dental Association, CDA President Dr. J. P. Coupland makes the following statement: "I am sure that the dental profession has the resources to sustain a vigorous, productive national association. But the

required support will only be forthcoming if individual members are constantly reminded of the benefits which they derive from the Association."

I am embarrassed that our president should be forced to make such comment. Now, more than ever before, we need unity of thought and action within our profession. With the increasing demands for expanded health services, dentistry is faced with many new challenges.

Surely the way to meet problems and provide solutions to the demands of the public is through a spokesman, supported by the entire profession. Yes, a lot can be done on an individual and provincial basis, but a federal government must be met by a federal representative.

There can be no doubt as to the rising cost of guiding our profession during this critical time. The Executive of the Canadian Dental Association is acting on our behalf, looking out for our interests. Can we do less than give it our full support, both verbally and financially when called upon?

(Nova Scotia Dental Association News, December 1966. Reprinted by permission.)

SHOULD INCREASE CDA GRANT

... Recent correspondence ... from [the] president of the Canadian Dental Association ... mentioned that our national associa-

tion is having problems. ... Possibly many members of the New Brunswick Dental Society are not aware of these problems.

There may be others who are not aware of the role of the Canadian Dental Association . . . insofar as the individual dentist in New Brunswick is concerned. All of the work carried out by our national association affects each of us. . . . [The] duties include: education, research, the Journal, health, auxiliary services, economic and statistical research, insurance, public relations, affiliation with the National Dental Examining Board, code of ethics, dental hygiene administration, [and] student aid. . . . [The Canadian Dental Association] also provides closer links between the provinces and the secretaries of the governing bodies. . . . Our Canadian Dental Association has over the years become a powerful and well organized tool from which we derive multiple benefits, even though these are not tangibly apparent to everyone.

In the past few years the Association has been operating in the red and at this year's annual meeting in Halifax a deficit budget was introduced. This has forced curtailment of a number of projects. During the next

few years the profession will be faced with the most critical phase in its history. There will be new challenges to face, new strategies to work out, new decisions to be taken. For this we require a strong and solvent national organization. Our Canadian Dental Association will need our moral support and stronger financial support in the years ahead.

According to the 1963 Survey of Dental Practice the average net income of dentists in private practice increased by 50 per cent from 1958 to 1963. . . . If the expenses of our national body have also increased during that time, an increase in the per capita grant should be considered. In view of the increase in net income this would not work any hardship on any of our membership. At our recent annual meeting the annual dues of the New Brunswick Dental Society were increased to \$75 and it is likely that a portion of this increase should be forwarded to our national body. . . .

(New Brunswick Dental Society Special News Letter, October 1966. Reprinted by permission.)

WHO NEEDS THE CDA? WE DO!

As a member of the Manitoba Dental Association it follows that I am a member of the Canadian Dental Association as well. Like many of the men in our profession I have probably grimaced or grumbled when writing my annual cheque for dues. We are told at our annual meetings how our provincial organization utilizes funds. Many of us have asked "What does the CDA do for us? Why is it so necessary to support the national organization?"

As editor of this [Manitoba Dental Association] *Bulletin* I receive a variety of CDA news items and bulletins. These inform me of the ways the national organization functions on our behalf. To begin with, most dentists would find it infinitely harder to earn a livelihood! Thanks to the CDA and the National Dental Examining Board which it sponsors, Canadian dentists can make fairly simple arrangements to practise almost anywhere in North America. Could you imagine the uninviting prospect of having to repeat your undergraduate studies when you desire to relocate in another province?

Some will recall that Ottawa used to levy a 25-35 per cent duty on nearly all imported dental equipment and supplies. After years of negotiation the CDA successfully persuaded the federal government to remove this impost from all but a few articles.

Without the national association, Canadian dentists may never have gained the privilege of attending two tax deductible conventions per year. The same may also be said of tuition for postgraduate courses

which are also a tax deductible item.

Without the CDA our profession would have no one to speak for it in its dealings with ministers of the Crown. Governments would find it impossible to conduct any meaningful relationship with a profession dominated by competing tribal interests and lacking national unity.

Without research we become a backwoods profession, and without the stimulus that CDA studentships and scholarships have provided, our dental schools might never have obtained some of their most valued teachers and the profession would have been deprived of an indispensable transmission of knowledge.

I have mentioned but a few of the CDA functions, because through the news releases, it has become increasingly apparent to me that finances are becoming a problem. As the structure of our society is becoming more complex, so are the functions of our national organization. Like every individual and corporation in our country the CDA too is feeling the pinch of inflation. Sooner or later it will be necessary for the CDA to come to us for more funds by increasing the grant. Let them not have to beg and pussy-foot. I hope that all of us are fully aware of the importance of a strong national body. Let us not have votes of dissent voiced out of ignorance from this province when an increase is suggested in the future—be it in two months or two years.

(Manitoba Dental Association Bulletin, November 1966. Reprinted by permission.)

Encore les spécialités . . .

Le Comité des spécialistes et des spécialités auquel le Conseil des Gouverneurs de l'ADC avait demandé d'étudier de quelle façon il y a lieu de reconnaître les spécialités, a préparé un rapport préliminaire (publié en page 218 du numéro d'avril du *Journal de l'Association dentaire canadienne*) dans lequel il expose les principes dont il entend s'inspirer dans l'étude de la question.

Essentiellement, on pose comme point de départ qu'il faudrait reconnaître les spécialistes dans les domaines où les facultés dentaires offrent un enseignement post-gradué, où le public a des besoins à satisfaire, et où les omnipraticiens désirent l'aide de confrères mieux qualifiés.

Tout en admirant les efforts accomplis par le Comité des spécialistes et des spécialités, et en respectant les opinions qu'il a émises, nous nous permettons de différer d'opinion avec les principes qui sont mis de l'avant. Nous croyons que l'on se préoccupe trop du respect des traditions et des décisions antérieures alors que notre première préoccupation devrait être de favoriser le développement futur de la profession dentaire.

Il ne nous semble pas tout à fait logique de reconnaître une spécialité parce que certaines facultés dentaires offrent des cours post-scolaires dans ce domaine. En effet, il est normal que la décision des facultés d'offrir ou non tel ou tel cours soit influencée par des facteurs de régie interne, des disponibilités de personnel enseignant et de cliniques, plutôt que par un désir de planifier le développement de la profession.

Nous savons aussi que pour bien des années encore, ces cours seront offerts dans des domaines correspondant à une compartimentation qui s'est développée depuis 25 ans au hasard des progrès de l'enseignement. La plupart des éducateurs dentaires sérieux cherchent aujourd'hui à intégrer leur enseignement en brisant ces compartiments. Il est donc douteux que cette compartimentation qui est déjà passée date, puisse servir de base solide à la reconnaissance des spécialités, telles que nous voulons qu'elles soient pratiquées dans les 20 années à venir.

De la même façon, nous devons reconnaître que le besoin qu'a l'omnipraticien de faire appel à un spécialiste ne reflète rien d'autre que des habitudes personnelles qu'ont prises les dentistes dans leur pratique quotidienne.

Si l'on se rappelle que la grande majorité des patients sont aujourd'hui traités par des dentistes qui ont plus de 10 années de pratique, il faut conclure que l'usage que l'on fait aujourd'hui des spécialistes ne reflète rien d'autre que les forces et les carences du curriculum dentaire d'il y a plus de 15 ans.

Il est donc peu probable que l'usage de 1967, qui lui-même résulte de décisions prises aux environs de 1950, puisse servir de guide à l'élaboration des normes qui régiront les spécialités en 1980.

Quant au patient, on admettra sans doute qu'il est indifférent qu'il soit traité par un spécialiste ou par un omnipraticien, pourvu qu'il le soit de façon adéquate.

Quelle que soit donc l'importance que l'on veuille accorder à la reconnaissance des spécialités, on fera bien de se souvenir que ce qu'il y a lieu de reconnaître chez le spécialiste, c'est sa connaissance approfondie du patient, de sa physiologie et des maladies dont il souffre, et non pas la familiarité avec quelques techniques spécialisées qui, le plus souvent, risquent de refermer les horizons du spécialiste plutôt que de les élargir sur l'ensemble de la profession.

On ne peut pas plus concevoir un chirurgien qui ignorerait la physiologie de l'occlusion que l'on peut imaginer un prosthodontiste qui ne serait pas tout à fait au courant de l'innervation de la face, ou un orthodontiste qui ignorerait la pathologie des tissus mous de la bouche.

Dès que l'on admet que la différence entre l'omnipraticien et le spécialiste réside non pas dans la familiarité avec des techniques, mais dans les connaissances poussées que celui-ci possède de l'objet de son travail, on voit disparaître la nécessité de la traditionnelle compartimentation seule responsable de la multiplication des spécialités, et base de tout le problème.

Il n'y a en fait qu'une seule profession dentaire qui cherche à comprendre de mieux en mieux l'être humain qui est notre patient. Notre préoccupation peut cependant s'exprimer de deux façons différentes: certains d'entre nous s'intéressant exclusivement à l'aspect préventif, médical et chirurgical de notre travail, alors que les autres sont davantage préoccupés par la parfaite intégration des aspects biologiques et mécaniques de notre profession.

Si l'on choisissait d'employer le niveau de connaissance fondamentale du patient comme critère de reconnaissance des spécialités, on pourrait se contenter d'avoir deux sections au Collège royal des chirurgiens dentistes du Canada: la stomatologie et la dentisterie restaurative.

Ainsi, la reconnaissance de la compétence supérieure dans les domaines essentiels primerait sur maintes distinctions futiles et mesquines que l'on pourrait rapidement oublier. Le spécialiste n'aurait plus à restreindre sa profession dans des limites mal définies et peu commodes pour le patient. Il pourrait décider lui-même de quelle façon il entend exercer sa profession dans l'intimité de son cabinet.

Il faudrait un certain courage au Comité des spécialistes et des spécialités pour suggérer des changements radicaux et braver la tradition, si courte soit-elle, à un moment où ne sont pas encore apaisées les passions qu'ont soulevées la création du Collège royal des chirurgiens dentistes du Canada.

Nous espérons simplement que l'on saura repenser à fond toute la question sans se laisser influencer par des facteurs trop personnels. Il ne faudrait pas que les erreurs d'hier compromettent le succès de demain.

Joignez-vous au plus de 2,400 dentistes dont les familles sont protégées contre les frais hospitaliers et médicaux, grâce au plan d'assurance-santé de l'Association dentaire canadienne. Ce plan les protège à fond contre les dépenses occasionnées par la maladie et les blessures, chez le médecin, le chirurgien ou à l'hôpital. On peut obtenir des renseignements détaillés en écrivant aux Plans d'assurance et de retraite de l'ADC, 2249 rue Yonge, Toronto 7, Ontario.

Dental significance of pathways for dissemination from infectious foci

T. P. Størtebecker,* MD, Oslo, Norway

Communication between the cranial and vertebral venous systems provides a pathway for the dissemination of bacterial products from dental and urogenital foci of infection to all parts of the central nervous system. Radiographic contrast medium injected post mortem into the marrow of the mandible or into the pulp of an upper tooth has been traced to the intracranial venous system. These and related findings may be potentially significant in the pathogenesis of disseminated sclerosis, epilepsy, myasthenia gravis, and other neurological disorders. They underline the importance of preventing and eradicating dental infectious foci.

La communication existant entre les circulations veineuses crânienne et vertébrale constitue une voie par laquelle les agents infectieux provenant de foyers d'infection dentaires ou génito-urinaires peuvent atteindre toutes les parties du système nerveux central. Sur le cadavre, un produit de contraste injecté dans la moelle du mandibule ou dans la pulpe d'une dent supérieure peut être suivi jusque dans le système veineux intracrânien. Ces observations et d'autres qui s'y rattachent pourraient éclaircir la pathogénèse de la sclérose en plaques, de l'épilepsie, de la myasthénie grave pseudo-paralytique et d'autres troubles neurologiques. Elles font ressortir l'importance de la prévention et de la suppression des foyers infectieux dentaires.

"Gold fillings, gold caps, gold bridges, gold crowns, fixed dentures, built in, on and around diseased teeth, form a veritable mausoleum of gold over a mass of sepsis to which there is no parallel in the

whole realm of medicine or surgery."¹ More than 50 years have elapsed since William Hunter's ringing denunciation uttered during an address delivered at the opening of the session of the Faculty of

Medicine of McGill University, Montreal, in 1910. Hunter's indictment presaged the theory of focal infection, a concept that many physicians and dentists embraced without hesitation. An immediate effect was the widespread and often indiscriminate eradication of primary foci of infection under the guise of therapy for innumerable ailments. "The literature," as Woods² put it, "soon became filled with glowing reports of brilliant cures of various obscure diseases following the removal of the teeth, the tonsils, the drainage of the accessory nasal sinuses, and such procedures."

This initial enthusiasm gradually waned, giving way to a growing wave of scepticism as portrayed by the following observation: "Stripped of tonsils and teeth, often the victim of colonic irrigations, abdominal and genito-urinary operations, the patient may finally be reduced to only those organs necessary for existence, while all the time his ocular disease progresses remorselessly to blindness."²

We now recognize that infection may spread in various ways — via lymphatics, arteries, fascial planes, nerves and the cranio-vertebral venous system. The two last mentioned pathways are the subject of discussion in this paper.

DISSEMINATION ALONG THE NERVES

There is good evidence that toxins, bacteria and viruses can extend along nerves. This mode of spread is applicable to rabies, herpes zoster and herpes simplex virus as well as certain forms of the poliomyelitis virus.

In England, Payling Wright³⁻⁵ showed that virus particles, as in experimental monkey poliomyelitis, were transported at a speed of 2-3 mm. per hour, traversing 5-7 cm. in 24 hours.

Other ingenious animal tests were performed by Marinesco and Draganescu⁶ at the Pasteur Institute, and by Goodpasture and Teague⁷ in the United States. Working independently of each other, they inoculated herpes simplex virus into the cornea in rabbit, thus demonstrating its spread. The virus followed the nerve fibres to the ciliary ganglion, then spread to the ophthalmic branch of the trigem-

inal nerve and continued via the Gasserian ganglion to the brain stem. Goodpasture and Teague⁸ also proved that herpes simplex virus can spread to the spinal ganglion of the posterior root via the sensory afferent nerves.

In view of this evidence, it is not surprising that a spread from infectious foci of the jaw to the intracranial cavity via the two remaining branches of the trigeminal nerve is also possible in man.

DISSEMINATION VIA THE CRANIO-VERTEBRAL VENOUS SYSTEM

There is a vertebral venous system that follows the spine externally and internally, and a cranial venous system that is situated extracranially and intracranially. The two systems communicate directly with each other at the base of the skull through the foramen magnum. The flow in this joint system is unimpeded as there are no valves directing the circulation.

Vertebral Venous System. — The British anatomist Harris⁹ claims that the vertebral venous system was described more than 400 years ago by an Italian, Falloppio (1523-62). Thomas Willis (1664) gave a detailed report of the vertebral venous system and demonstrated its communication with the occipital sinuses of the dura mater. Bock¹⁰ demonstrated the communication between the intraspinal vertebral venous system and the sacral, lumbar, thoracic and cervical veins. These veins, he noted, are freely connected with the vertebral venous system by branches passing through the intervertebral foramina. It is regrettable that such ancient anatomical observations have been forgotten. At any rate, clinicians paid scant attention to the possibility of communication until 1940, when Batson¹¹ suggested that metastases could spread to the brain via the vertebral venous system.

Batson¹¹⁻¹³ demonstrated the pathway radiographically in cadavers. He injected contrast medium into the dorsal vein of the penis and traced the medium via the pelvic veins, through the entire intraspinal vertebral venous system, and up to the skull. The medium bypassed the inferior vena cava and the lungs. Batson

also showed that contrast medium could sometimes even reach the venous system of the face. Similarly, Valsalva manoeuvre experiments on monkeys produced a flow from the pelvic veins to the vertebral venous system. Batson considered this mode of flow as very probable in certain malignant metastases, such as carcinoma of the prostate gland.

Anderson¹⁴ supported the concept of venous dissemination of metastases from primary foci to the brain. He showed that there is communication between the veins of several organs (prostate gland, kidneys, adrenal glands, lungs, mammary glands, thyroid gland) and the cranium via the vertebral venous system.

Helander and Lindbom¹⁵ also conducted radiographic studies in man. They inserted a catheter into the femoral vein and then injected contrast medium into the iliac vein and performed a simultaneous Valsalva manoeuvre. This caused the contrast medium to flow into the intraspinal vertebral venous system. With the patient in sitting position, the contrast medium could be forced up to a high thoracic level intraspinally.

The work of Romanus¹⁶ is also significant. This author demonstrated a clear relation between urogenital infectious foci and pelvo-spondylitis.

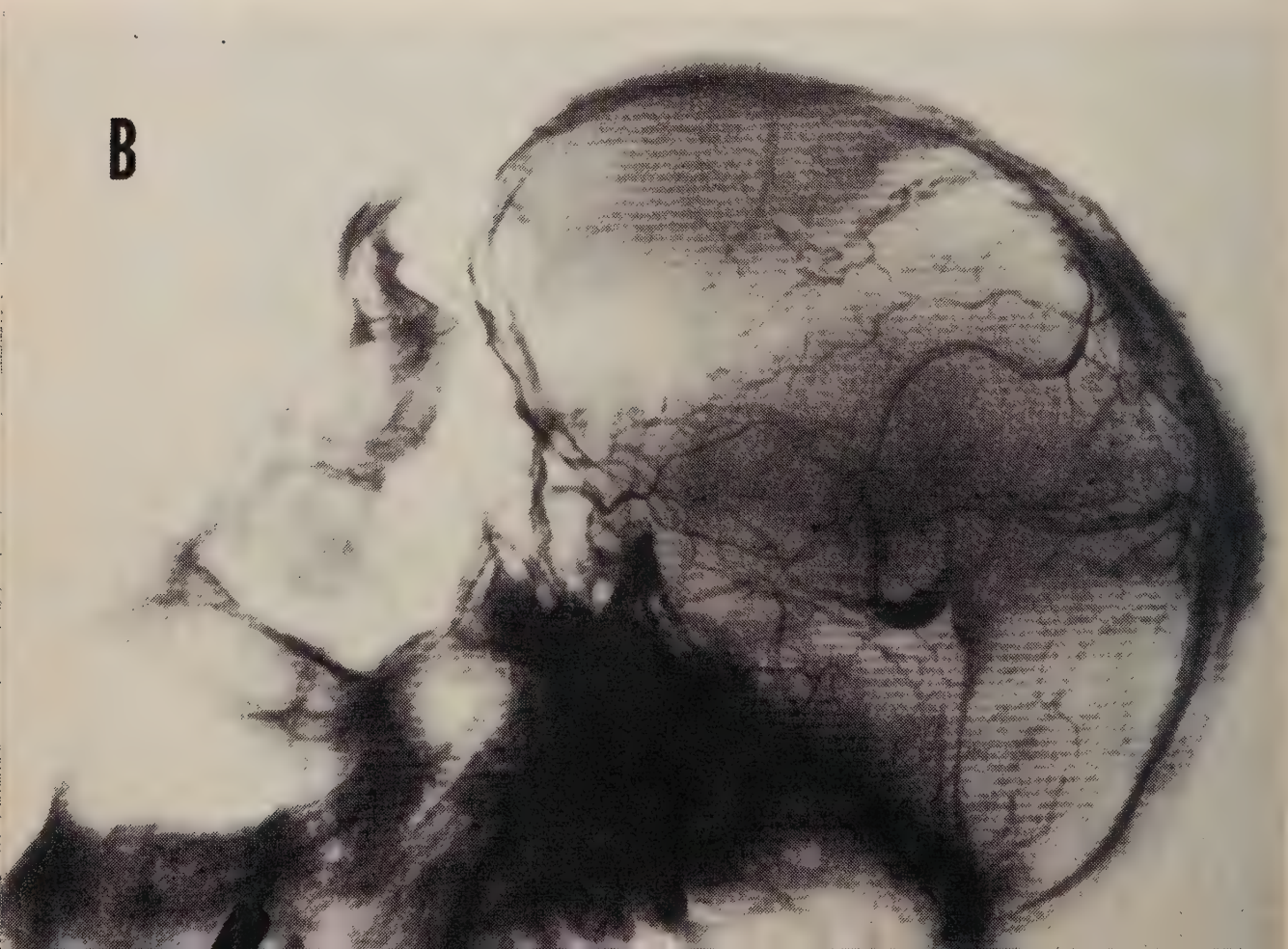
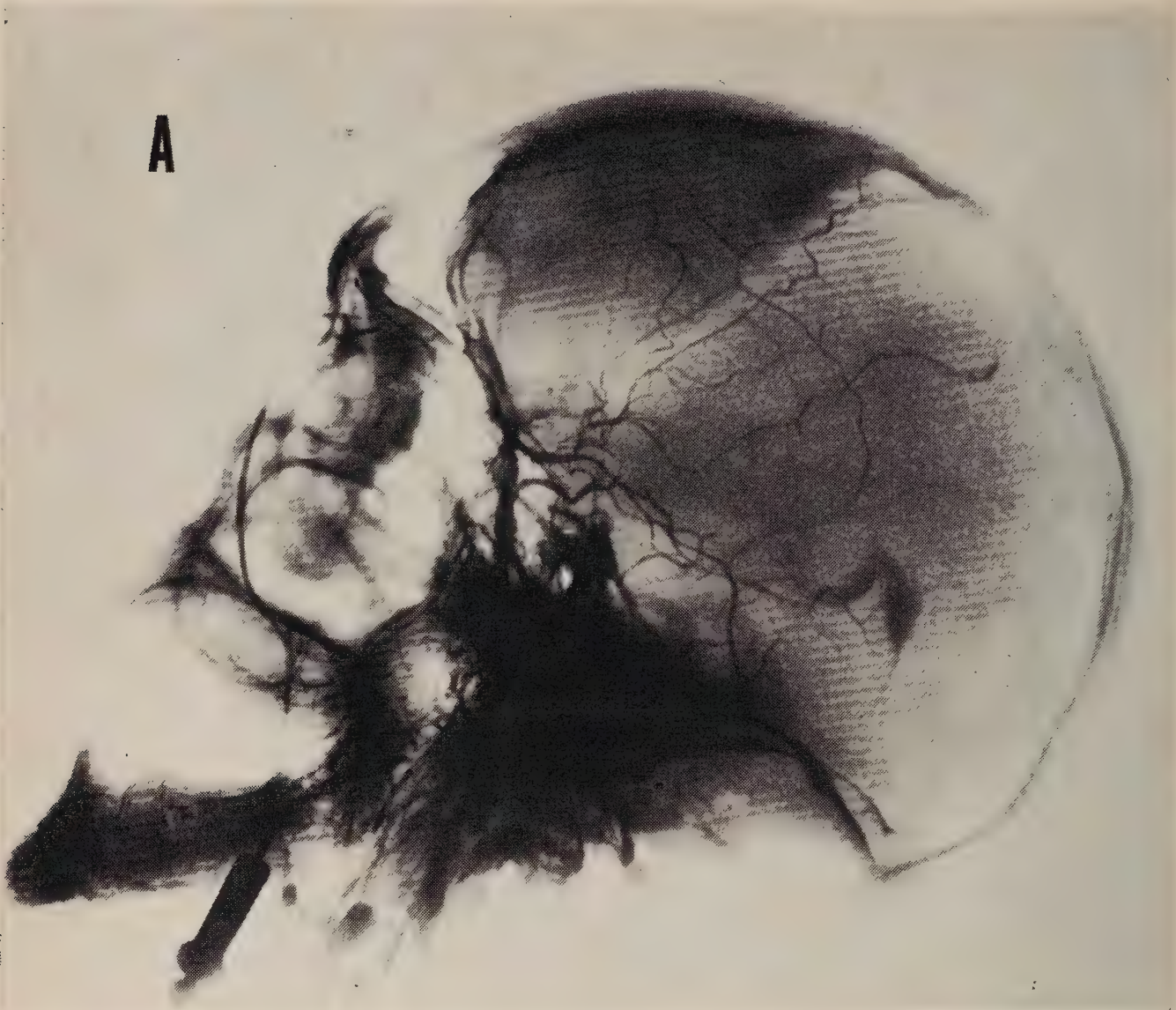
The normal and morbid anatomy of the veins and dural sinuses of the brain, well known to older anatomists, has lately been rediscovered through radiographic examination. Johanson¹⁷ demonstrated, in cadavers, complete filling of the central cerebral veins by injecting liquid barium contrast medium into the straight sinus at the confluence. Other authors have shown *in vivo* filling of intracranial venous sinuses from cranial and extracranial venous sources. Fischgold et al¹⁸ injected contrast medium into the external occipital protuberance and obtained slight intracranial venous filling. Later, Romieu et al¹⁹ tried various extracranial intravenous injections to obtain a visualization of intracranial venous sinuses down to the level of the jugular venous sinus. However, the distribution of contrast medium was too sparse for satisfactory angiographic results. Gejrot and Laurén^{20,21} performed retrograde venography of the internal jugular veins and intracranial

transverse sinuses in connection with diagnosis of tumours of the middle ear. Recently, Gillot et al²² achieved extensive filling of the superficial and deep cerebral veins. They did this by injecting contrast medium from a ballooned catheter placed in the internal jugular vein and introduced from the femoral vein by the transcardiac route. Lastly, the Russian neurologist Telegina^{23,24} conducted experiments on dogs and in man. When she injected water soluble contrast medium into the diploe of the skull, it passed directly out into the big intracranial venous sinuses and outlined the veins of the dura. The required injection pressure varied considerably in different individuals; in some cases there was substantial resistance whereas only a slight pressure was needed in others. No traces of arterial filling were observed by Telegina's method of diploe-sinusography.

Cranial Venous System. — Sicher's²⁵ comments on the anatomy of the veins in the head and their role as pathways for the spread of toxic-infectious substances are highly significant. Says Dr. Sicher:

"Intracranial veins, draining the blood of the brain, and extracranial veins are connected by multiple anastomoses which permit a flow of blood in both directions. The anastomoses between the veins of the brain, which is enclosed in a rigid bony capsule, and the extracranial veins are safety outlets. Their existence prevents a rise of the intracranial pressure which would occur if the internal jugular vein, the main drainage of the cerebral blood, were compressed. In this case the venous blood of the brain can escape in many directions. These communications are, however, a potential danger because an infection, involving primarily an extracranial vein, for instance one of the facial veins, may spread to the intracranial veins and involve the meninges. . . . The danger of a retrograde spread of infection is the graver, because the veins of the face have few, if any, valves, which in other veins prevent a backflow of blood. In addition one has to remember that the intracranial veins, collecting the blood of the brain, are not collapsible. . . . The rigidity of the walls of the venous sinuses prevents any change in their lumen and renders them open ways for the spread of infection. . . .

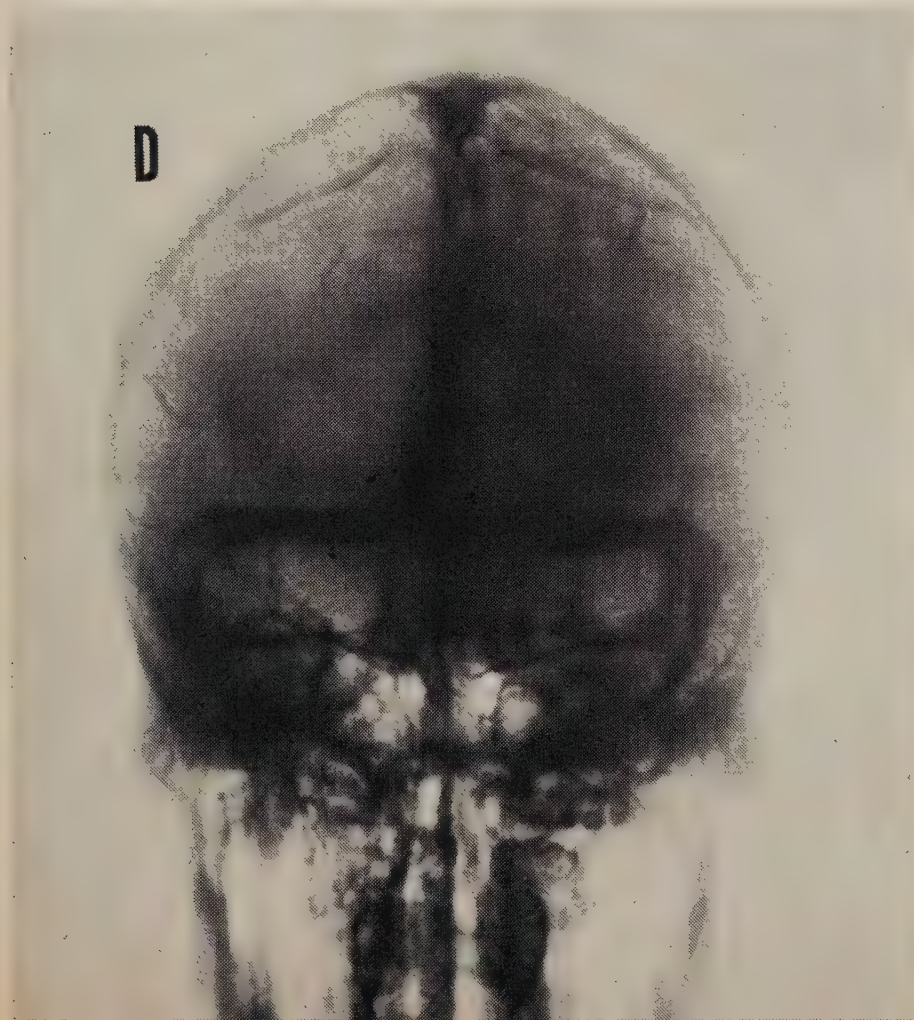
"The communications of the ophthalmic veins with the anterior and posterior facial . . . veins are of special importance in the pathology of facial infections. . . . The superior ophthalmic vein is, at the inner corner of the eye, in constant and wide communication with the angular vein which continues into the [anterior] facial vein. . . .



C

FIGURE 1 Water soluble radiographite contrast medium in a cadaver demonstrates direct venous communication from the marrow of the mandible to the intracranial venous system. A, depicts filling of some superficial scalp veins, one facial vein, some dural veins, and slight filling of the intracranial venous sinuses. The superior longitudinal sinus is filled with a small amount of contrast medium from the frontal region below the vertex of the skull and backwards to the confluence of the sinuses. In the central region the great vein of Galen is partly filled. B, shows contrast medium in the superficial veins of the brain, in the sinuses and in the great vein of Galen. C (side projection), and D (anteroposterior view), show contrast medium outlining the big intracranial sinuses and the confluence in the occipital region.

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D

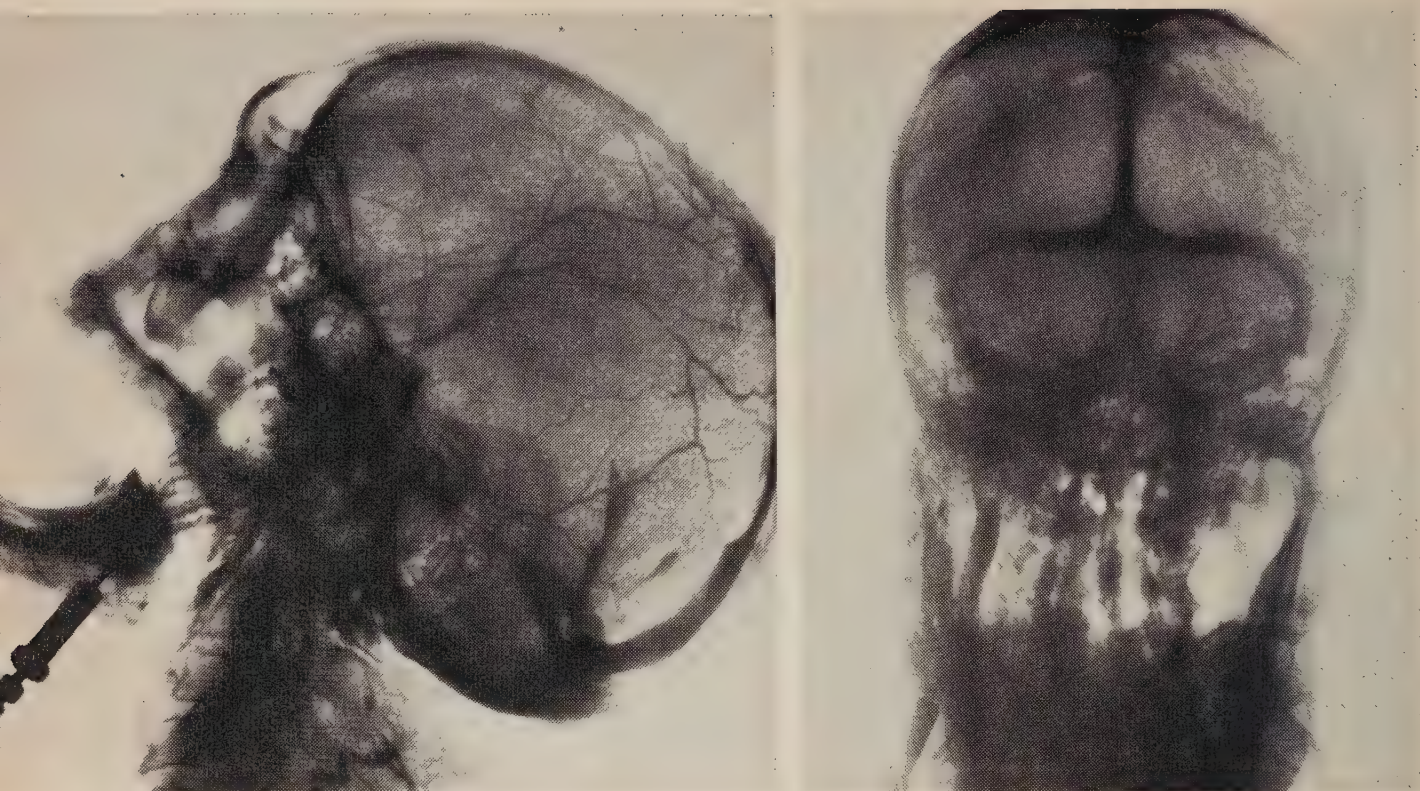


FIGURE 2 Filling of the intracranial venous system following the injection of water soluble radiographic contrast medium into the marrow of the mandible in a cadaver.

"[A. second important anastomosis] between the veins of the orbit and the [posterior facial] vein . . . connects the posterior end of the inferior ophthalmic vein with the pterygoid plexus of veins from which the [posterior facial] vein receives most of its blood. The anastomosing branch passes through the inferior orbital fissure and links the system of the posterior facial vein with the cavernous sinus behind the orbit."

We know that a superior labial furuncle can cause meningitis. As there are no lymph vessels with intracranial communication in this area, the spread must take place along the venous system.

With regard to brain abscess, Irsigler²⁶ mentions a direct venous route for the spread of infection from ipsilateral foci in the ear, sinuses and jaw (including infected wisdom teeth).

Venography of the pterygoid plexus, as performed by Schobinger et al,²⁷ provides further confirmation for the existence of such a pathway. Their investigations were performed on patients with carcinoma of the jaw. All subjects were in a sitting position. They received an injection of contrast medium into the angle of the mandible. A needle was drilled into the jaw and approximately 8 ml. contrast medium were injected into the marrow.

The medium spread rapidly into the venous system around the jaw, then continued over to the venous pterygoid plexus and up to the base of the skull. Although the patients were sitting, the venous plexus was filled up to the base of the skull. These results established a communication between the venous pterygoid plexus and the intracranial venous system, but they did not show the actual connection with the intracranial system. Most textbooks cite the abundant venous anastomoses penetrating the base of the skull. These are considered to serve mainly the venous outflow from the brain, but the reverse is seldom discussed.

Medical students are usually taught that teeth are an important part of the total organism. Unfortunately, this knowledge is insufficiently applied. Osteitis in a finger, a toe or in the calvarium invariably spurs the physician to immediate action. But osteitis in the upper jaw at the site of a tooth, within 10 cm. of the brain, may be casually dismissed with the comment that "everybody has bad teeth!"

A direct communication between the teeth, their surroundings and the intracranial cavity was demonstrated by

Störtebecker,²⁸ Molin, Nenzén, and Ericson in 1964 at the University of Umeå. The intracranial venous system was filled by injecting contrast medium into the marrow of the mandible in cadavers (Figures 1 and 2). Similarly, contrast medium injected into the pulp of a tooth in the upper jaw passed directly into the cranial venous system. It filled the pterygoid plexus, orbital venous plexus and the intracranial venous system (Figure 3). The water soluble contrast medium used was a 60 per cent solution of Urografin (Schering). This is similar to material used in angiography. Amounts of 5 to 10 ml. were administered at each injection, using up to a total of 30 to 40 ml. in each cadaver experiment. At autopsy one day *post mortem*, the contrast medium was injected through a needle drilled into the bone marrow or through a needle cemented into the pulp of a tooth.

Direct passage to the intracranial venous system was repeatedly shown in successive experiments on cadavers. No special preparation of the cadaver was required. Nor was it necessary to empty the veins before injecting the contrast medium. Indeed, as Johanson¹⁷ points out (though under somewhat different circumstances), "attempts to cleanse the vessels by perfusion with saline solution . . . offer no definite advantage." The amount of pressure required was not measured manometrically in these experiments. Injections into the marrow of the mandible in cadavers encounter rather strong resistance; therefore the contrast medium has to be injected with some force. But, the injection of water soluble contrast medium into the pulp of a tooth requires very little force, and only a very slight pressure is needed to inject 10 ml. in a few seconds.

We carried out a similar investigation in live rabbits. A few ml. of 60 per cent Urografin were injected into the pulp of an upper incisor through a needle cemented into the tooth pulp. The injection was performed using only slight finger pressure. Radiographs taken during the injections showed that the water soluble contrast medium passed directly from the pulp into the venous system of the facial skeleton, orbits, and base of the skull.

Our studies on cadavers and our animal experiments revealed no trace of arterial filling by contrast medium. The latter passed exclusively and directly into the cranial venous system, a finding that corroborates Telegina's^{23,24} observations on diploe-sinusography.

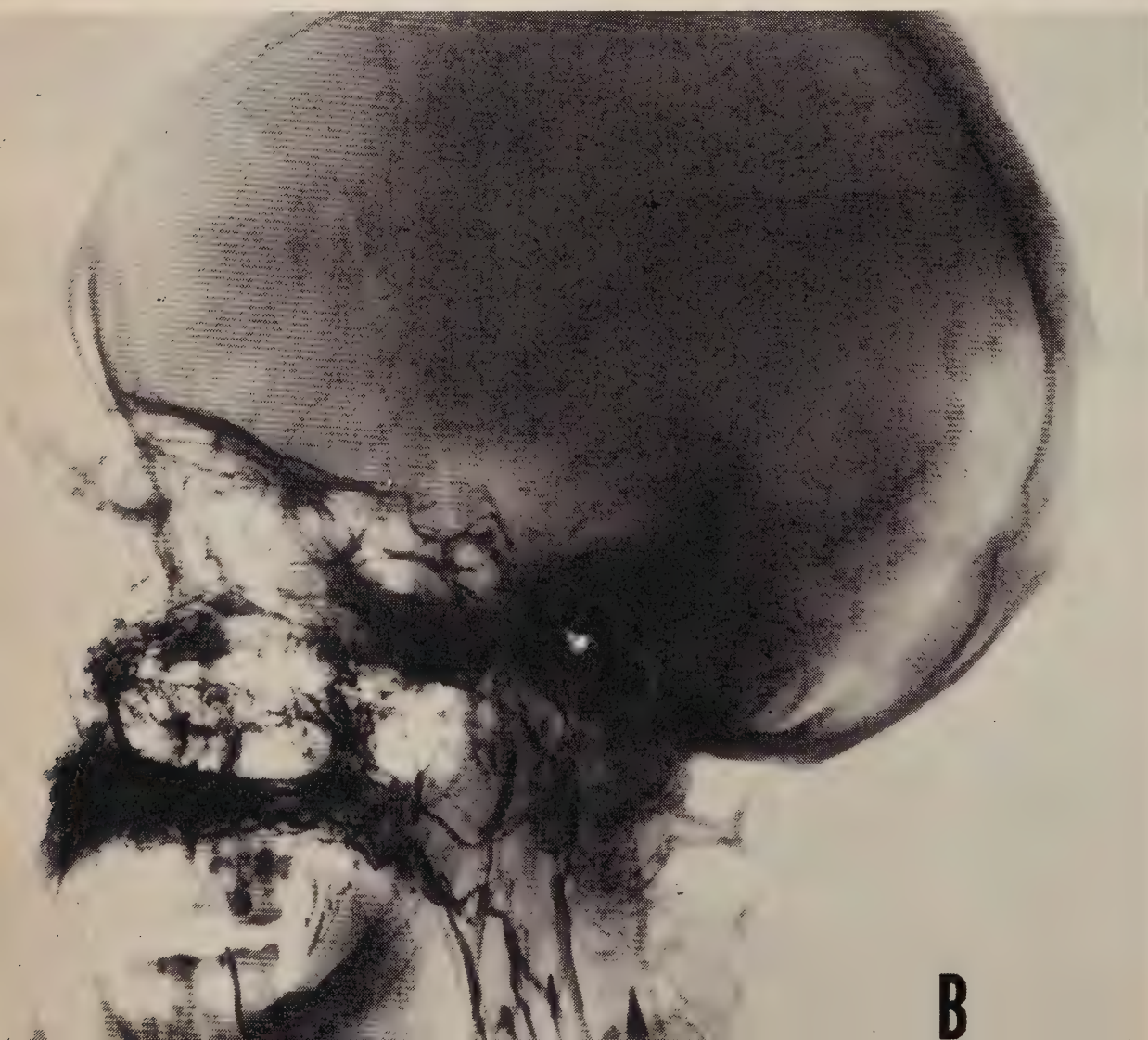
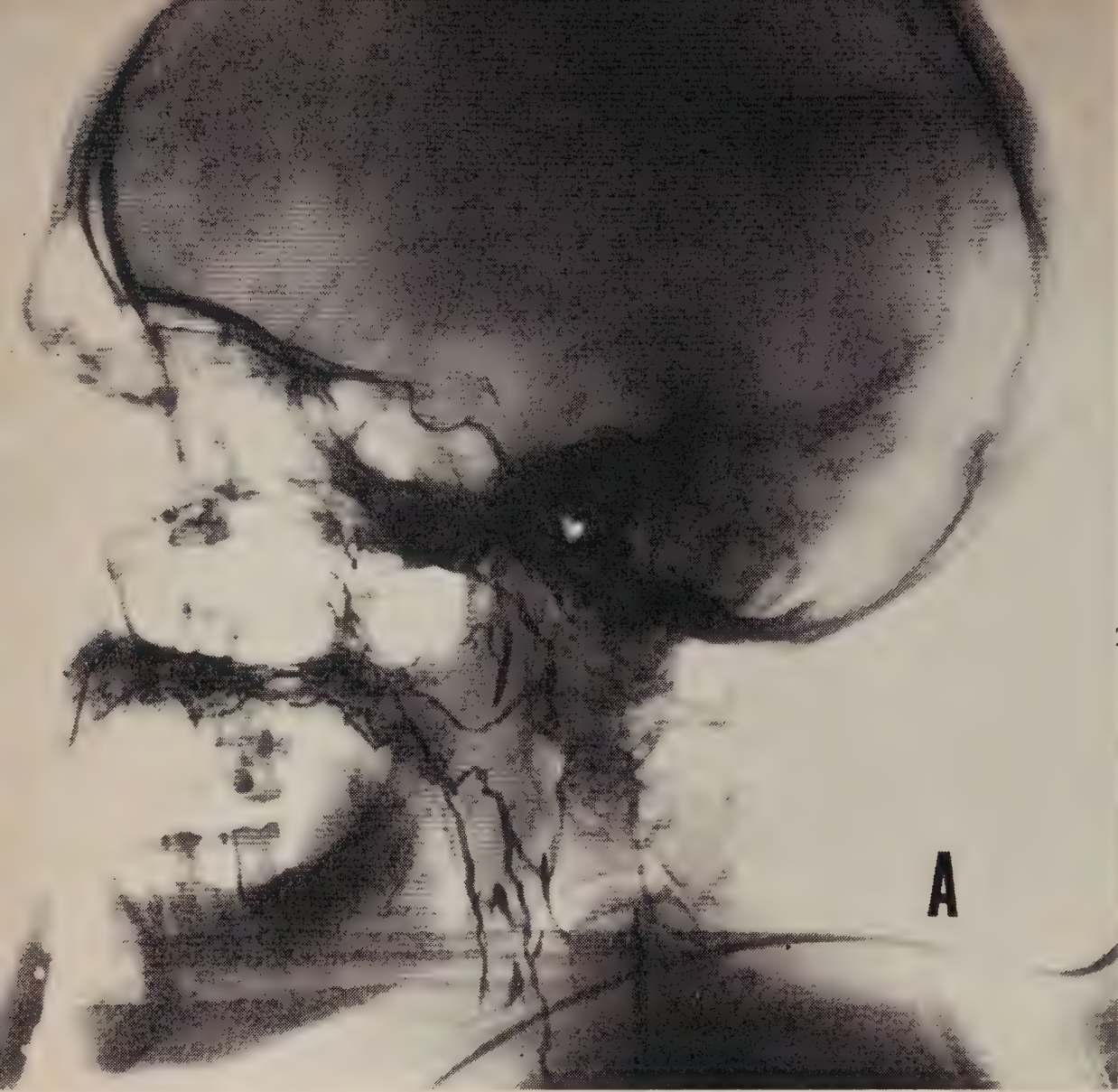
CLINICAL IMPLICATIONS

The valveless vertebral and cranial venous systems merit attention from a neurosurgical standpoint.²⁹ They may facilitate the spread of metastases. Gynaecologists³⁰ have also cited the occurrence of intracranial sinus thromboses following septic abortions. Apart from these observations, there has been relatively little clinical interest in this subject. Consequently, I submit the following two observations on neurological disorders:

1. Communication between the cranial and vertebral venous systems may permit dissemination of bacterial products from dental and urogenital foci to all parts of the central nervous system. This suggests that chronic dental infection could play an important role in the pathogenesis of some forms of disseminated sclerosis. Characteristic of the pathology of disseminated sclerosis is the perivenous localization of plaques in the central nervous system,^{31,32} a finding which may accord with the spread of toxins via the cranio-vertebral venous system.

2. The principle of the shortest pathway must be kept in mind when searching for a focus of infection.³³ In cranial lesions, such as eye muscle paresis and optic neuritis, it is advisable to seek infectious foci within the cranial venous system. In spinal lesions (myelopathy) the search must be directed to possible infectious foci which may spread bacterial toxins to the vertebral venous system.

Adamson and Störtebecker^{34,35} have reported a high antibody titre against colixotoxin in certain patients who suffer from disseminated sclerosis and exhibit a positive colloidal reaction with increased γ — globulin in the cerebrospinal fluid (including positive agglutination 1/640 for the O-antigen 1 strain of *E.coli*). Many of these patients had urinary infections with *E.coli*. These authors did not deter-



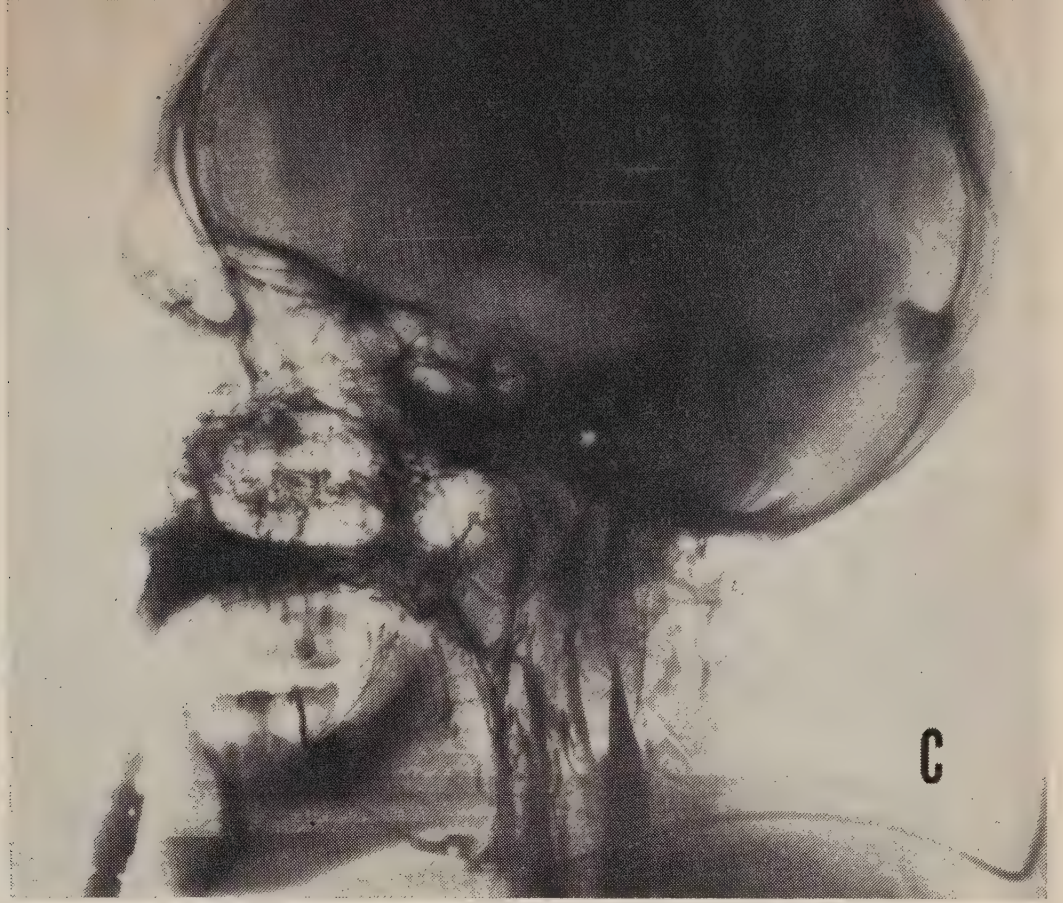


FIGURE 3 Water soluble radiographic contrast medium injected into the pulp of an upper tooth in a cadaver. The medium has passed into the cranial venous system. **A**, depicts contrast medium in the venous system of the upper jaw and downwards with a slight amount in the internal jugular vein. **B**, shows further filling of the venous system of the facial skeleton and the pterygoid plexus as well as slight intracranial filling of the superior longitudinal sinus. **C**, shows intracranial contrast filling of the occipital confluence of the great sinuses. This is further outlined in **D** (anteroposterior view).

mine whether identical strains of *E.coli* organisms were present in the urine and in the cerebrospinal fluid. Nevertheless, this limited finding is significant in the light of our present knowledge of venous pathways from the urogenital system to the spinal cord.

The dissemination of bacterial products may also play a role in epilepsy. Bering³⁶ compared the results of intracutaneous tests with antibodies against α -streptococci in 117 patients with idiopathic epilepsy and 105 non-epileptic control subjects. He obtained positive reactions in 78 per cent of the epileptic patients and in 7 per cent of the control subjects. Bering could not explain this finding. However, I³⁷ have observed in epileptic patients an encouraging regression of clinical and electroencephalographic signs and symptoms following the elimination of dental infectious foci.

Auto-immune mechanisms must also be considered in connection with infectious foci. Micro-organisms or their toxins can spread via the arterial pathway to the musculature of the extremities or via the cranial venous system to the musculature of the face and eyes. This has significance in myasthenia gravis — a myositis³⁸ with possible antibody formation against the cholinergic receptor in muscles.^{39,40} It may also account for localization of the myasthenia, as reflected by unilateral ptosis, myasthenia in certain isolated eye muscles but not in others, myasthenia in the pectoral girdle but not in the lower extremities, or vice versa.

The occurrence of a positive fluorescent antigen-antibody reaction in cases of myasthenia lends further support to the potential existence of a circulating antibody which may cause a competitive block at the transmission of the nerve muscle end plate. Myasthenia gravis would thus begin as myositis, originating from dissemination of various micro-organisms or their toxins. In affected groups of muscles there would be a combination between bacterial toxin and the respective nerve end plates. The resultant incomplete antigen (hapten) would react with and bind the respective antibody circulating in the blood. This involves blocking of the nerve end plates of the affected muscles which in turn prevents

acetylcholine from exercising its normal effect on the transmission.

The thymus is considered to be an immunologic organ, and the often favourable effect of thymectomy in myasthenia gravis can partly be explained by the resultant suppression of antibody formation.

It is necessary to emphasize, however, that an established lesion in the central nervous system cannot be cured by removing infectious foci. It is therefore quite clear that progressive tooth extractions for the relief of trigeminal neuralgia cannot affect a lesion which is already present in the Gasserian ganglion or more proximally in the brain stem.³⁻⁵ Likewise, we can cure neither established perivenous plaques in disseminated sclerosis nor the symptoms originating from the lesions present in the central nervous system. All we can do in these cases is to arrest progression of the disease by preventing further dissemination of toxins via the venous system to the spinal cord and the brain. Our primary aim should be prophylactic — to prevent the outbreak of the disease.

Neurological disorders and mental illness exact an enormous social and economic toll. The inclusion of a thorough dental examination with every medical check-up is therefore imperative in an effective program of prevention and eradication of infectious foci.

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Discoverer of Photosynthesis • Jan Ingenhousz (1730-1799), a Dutch-born physician, in 1779 reported the process by which plants convert carbon dioxide and water into simple carbohydrates. Based on this knowledge, other scientists have been able to make advancements in chemistry as well as in agriculture. Ingenhousz, born in Breda, Holland, received his MD degree from the University of Louvain in 1752. He practised in Holland and England. In 1778, he was called to the Austrian court by Empress Maria Theresa to inoculate three members of her family against smallpox after two other members had died from the disease. This was done after preliminary experiments upon 200 Viennese children. Upon his return to England, he was elected a fellow of the Royal Society. He died in Bowood, England. — J. A. Mirt. Medical Pathfinders on Postage Stamps



New mobile equipment at the University of British Columbia allows the student to work in a comfortable seated position with serviced instruments readily available and support for hand instruments provided on both sides of the patient.

Clinical equipment for a new dental school

D. G. Middaugh,* BA, DDS and T. J. Harrop,† LDS (Glasgow),
DDS, MS, PhD, Vancouver, British Columbia

The advent of the air turbine marks an entirely new departure in dental practice. Heretofore, the conventional chair and stationary unit defied all efforts to reduce fatigue, bad posture and restricted dental productivity. The authors describe new mobile equipment acquired by their dental school. Their projections of future technological advances in the design and arrangement of dental equipment open an exciting vista of a more relaxed dentist who provides increased service to more patients in greater comfort.

L'avènement de la turbine à air marque le début d'une ère nouvelle en dentisterie. Jusqu'à présent, le fauteuil traditionnel et l'installation fixe ne permettaient pas de réduire la fatigue, la mauvaise position, et diminuaient la productivité. Les auteurs présentent l'installation mobile nouvelle de leur faculté dentaire. Les progrès technologiques qu'ils prévoient dans la conception et la disposition des installations dentaires permettent d'imaginer un dentiste plus reposé, traitant plus de patients dans un confort accru.

In a previous article¹ we discussed the teaching program in the Faculty of Dentistry, University of British Columbia. This article deals with the choice and arrangement of major equipment for the new clinical facilities.

Like the design of a new curriculum, the opportunity to equip a new dental school is most challenging because of the potential for significant long-term changes in teaching and practice. Those responsible for choosing equipment must look ahead as far as possible in order to avoid early technological obsolescence. Rapidly

changing patterns of dental practice (the use of multiple auxiliaries, extension of dental hygienists' responsibilities, and so forth) dictate a certain amount of detached inquiry into the underlying principles governing the design of dental equipment.

An early decision by this Faculty was that the training of dental students should be as realistic as possible in terms of dental practice. We felt keenly that our students should be trained to become practising dentists, not successful dental students.¹ To meet this goal, it was de-

cided that each student would be provided with a simulated office in which all general dentistry could be performed.

In the dental clinic, this pseudo-office consists of a cubicle enclosed on three sides by semipartitions 4½ feet high. A counter mounted on the right hand wall contains a sink and a built-in x-ray view-box. Instrument drawers, a waste receptacle and a mobile instrument cabinet are installed below this counter. There are three water systems in the school: cold, warm and hot. Warm water is supplied to the sink for hand washing, thus eliminating the need for mixing and controlling hot and cold water. A metered faucet permits washing without the necessity of touching faucets or valves once the hands are clean. This system eliminates any projecting levers or valves near the floor which are invariably difficult to keep clean. Compressed air, gas and electrical outlets are provided above the counter top. Services for the dental chair and unit are installed in one corner of the cubicle. These services include electrical outlets, warm water, compressed air and a connection to a central evacuation system. Warm water is supplied to the multi-purpose syringe and handpieces.

There is no provision for plumbing connections or other services through the floor because we do not use the traditional stationary floor-mounted dental unit. Although satisfactory equipment was not available when these architectural decisions were made, there were already abundant signs that mobile units and chair-attached equipment were being developed.

For some years individual dental practitioners and various study groups have experimented with different kinds of dental equipment.²⁻⁷ Governmental institutions and dental schools have also investigated the design and use of various 'unconventional' types of dental equipment.⁸⁻¹⁰ More recently, the UBC Faculty developed criteria for the evaluation of available clinical equipment. These criteria favour equipment that is realistic in terms of the student's eventual dental practice and which meets reasonable requirements of sturdiness, cleanliness and aesthetic appeal.

CRITERIA

The following criteria were established by the Faculty and submitted to interested manufacturers:

Dental Chair.—The dental chair shall be a contour or lounge type. Lift, tilt and back-angle adjustments shall be powered. Foot controls for these adjustments are preferred, but other types of controls will be considered if some means of preventing microbial cross-contamination are available. Chairs are preferred which can be adjusted to allow both patient and dentist to be in a sitting position during dental procedures. Provision should be made for attaching a dental operating light. Attached holders for evacuation hoses may be required.

Dental Operating Unit.—Controls for one high-speed and one low-speed handpiece and a sterilizable multi-purpose syringe should be provided. Units with and without evacuation tubes will be considered. Units with hose retraction systems are preferred. An instrument tray capable of being positioned adjacent to the reclined patient's head is preferred.

Although inherent flexibility in control systems is preferred, instruments which produce oil-aerosol contaminants will not be used. Provision should be made for avoiding microbial cross-contamination from adjustment and selector valves on control systems. Preference will be given to multi-purpose syringes which are detachable and can be sterilized in an autoclave.

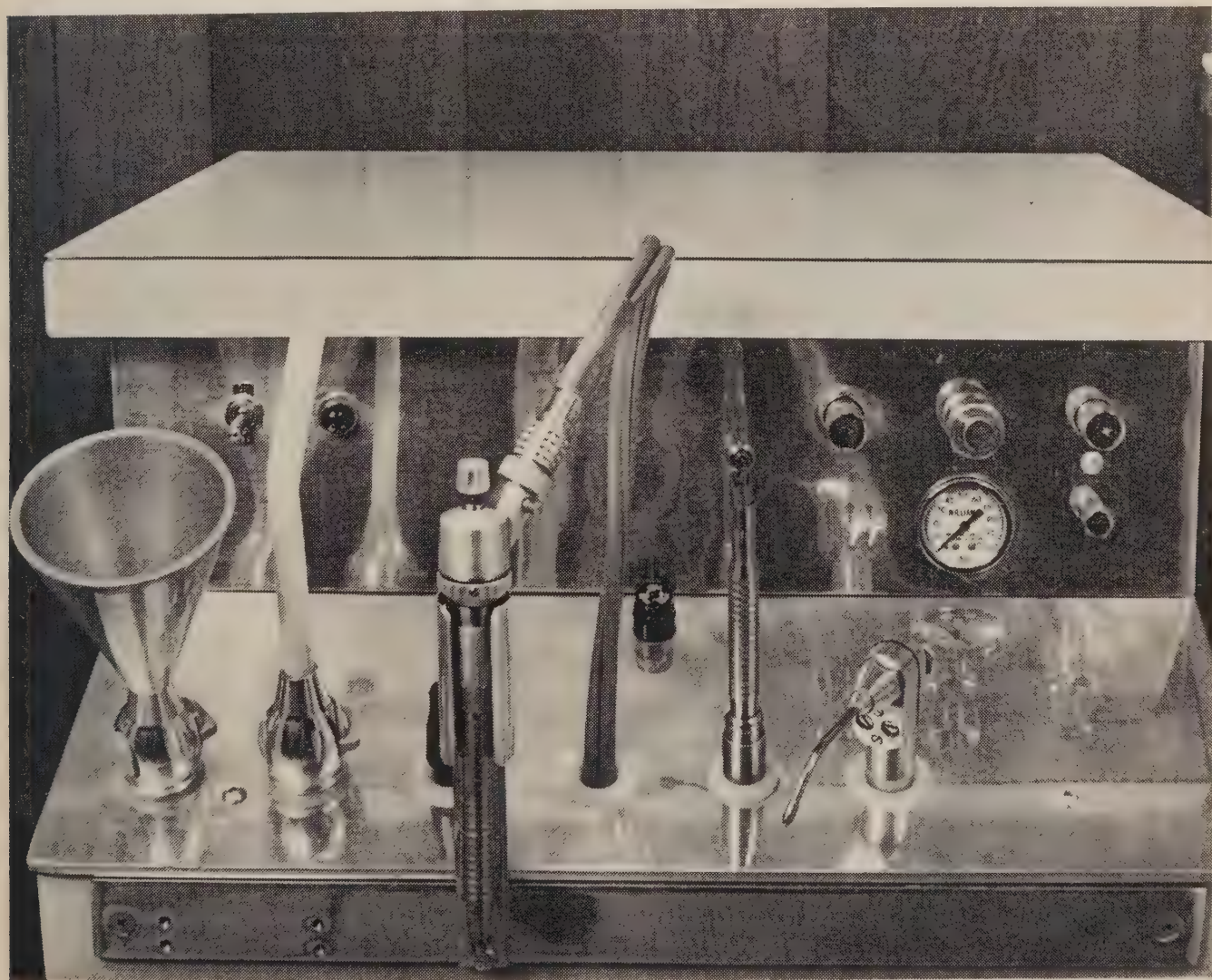
Evacuation System.—A central evacuation system which provides for a local separation of air flow and waste is desirable.

Dental Operating Light.—Operating lights should be appropriate for attaching to a dental chair. A small lightweight fixture is preferred. Provision should be made for avoiding microbial cross-contamination from switch and adjustment handles. Detachable handles capable of sterilization in an autoclave are preferred. Intra-oral light levels must be 1,500-2,000 foot candles at a working distance of 18-24 inches.

FIGURE 1 A mobile dental unit chosen for use in the teaching clinic.



FIGURE 2 This arrangement of serviced instruments is most efficient when the cabinet is placed by the side of the chair and the student is working alone. With a full-time assistant, the unit is better located behind the chair. When used in this fashion, evacuation hoses and handpieces are interchanged.



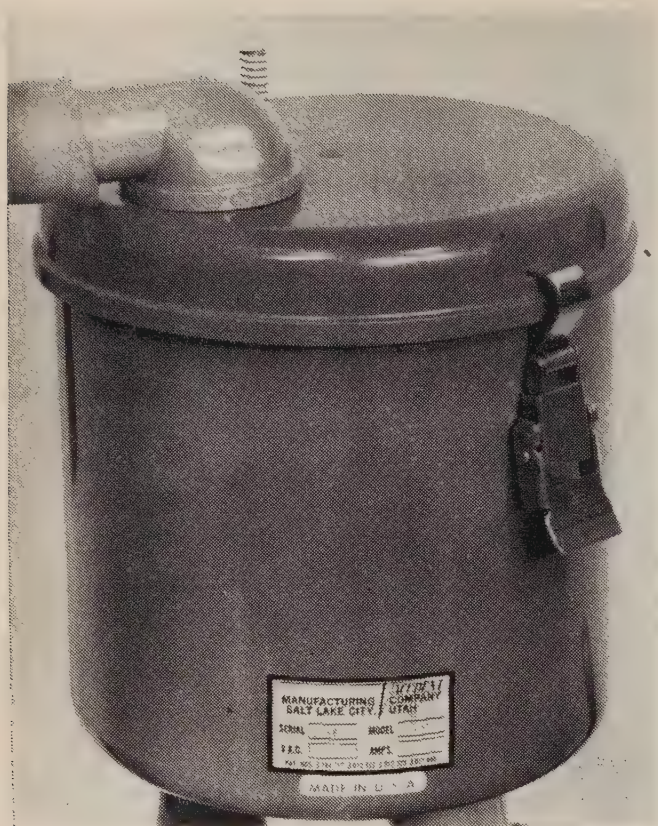


FIGURE 3 The central evacuation system separation canister allows local separation of waste and remote exhaust of contaminated air.

APPLICATION AT THE UBC CLINIC

Some of the manufacturers were dismayed because these specifications called for equipment which was not then available.

For example, at that time there was no dental operating light with a detachable handle that could be sterilized in an autoclave, although such lights did exist for general surgery operating theatres. Similarly, there did not exist a detachable multi-purpose syringe that could be sterilized in an autoclave. Our emphasis on cleanliness and ability to sterilize all equipment and instruments with which the dentist comes into contact apparently surprised the manufacturers.¹¹ Past indifference about the sterility of dental equipment undoubtedly originated from the inability to sterilize many portions of the traditional dental unit. The advent of air-powered handpieces and the development of satisfactory evacuation systems have made it possible to eliminate the traditional dental unit with its large electric engine and cuspidor. Handpieces are now obtainable

which can be routinely sterilized in an autoclave. This, at least, is a fair start. Moreover, it is now possible to have other pieces of dental equipment, such as the multi-purpose syringe and light handles, which can be sterilized.

Since our students usually work in the seated position,⁴ it is possible to delegate certain tasks to foot-operated switches. Nevertheless, we had to compromise with reality in certain characteristics of the equipment initially purchased. We are keenly aware of this and we still seek equipment which will conform more closely to our original criteria. A mobile dental unit that approximates our criteria has been adapted for us from the standard model (Figures 1 and 2). When used with a dental assistant, this unit functions most efficiently behind the patient's head where it is readily accessible to both dentist and assistant. Since we cannot provide dental assistants for the students, the unit is best placed to the right of the dental chair (for right handed students). In this position, it is desirable to have the evacuation hoses and handpieces located as shown, thus eliminating crossing of hoses when the patient is holding the evacuation cup and the student is operating with one of the handpieces.

Although the cabinet is bulky, the base must be large enough to make the entire unit stable. Moreover, the cabinet provides a large working surface for use during patient treatment.

We selected an evacuation system which provides for local separation of air flow and water (Figure 3). Central evacuation systems, involving long distance flow of waste products, unfortunately tend to clog and smell. We considered local drainage systems which exhaust the air flow back into the cubicle, but these are unsatisfactory from a bacteriological point of view, particularly in an 80 chair clinical area. Our local separation central evacuation system does have the disadvantage of being relatively complex to install. When used with a large continually running blower serving many operating sites, it also has the annoying characteristic of shutting off once a certain volume of water has accumulated. The water drains off fairly rapidly, but it is necessary to depress a valve on top of the

separation canister in order to restart the air flow.

Another environmental characteristic—the ambient light level^{6,8,12}—received considerable attention prior to the completion of plans for our clinic. Light level measurements were made in several dental offices and other technically demanding work areas. The range of levels recorded in dental offices was disturbingly large; in fact, very few had light levels and light distribution patterns that would be considered industrially adequate. In our clinic, every effort was made to ensure an ambient light level in the neighbourhood of 200 foot candles at the working area. Higher levels, though desirable in private offices, would have required extensive air circulation and air cooling equipment in a clinic. The light had to be as non-directional as architecturally feasible. This combination of high intensity and non-directionality eliminates the need for using dental operating lights for overall illumination. The operating light then functions as a directional light source. It assists in identifying contours and surface characteristics. It is also used for illuminating extremely deep narrow cavities which cannot be otherwise visualized.

A major piece of apparatus outside the student cubicle, but nevertheless in support of it, is the sterilization equipment. We selected rapid-cycle vacuum autoclaves (20" x 20" x 36" Vacumatic-American Sterilizer Co., Canada Ltd.) for the student dental clinic. At the present time, these are the only means of assuring definitive sterilization and the rapid return of student-owned instruments. The student can, therefore, treat a maximum number of patients in a four hour clinic session. The total down time for student instruments ranges from five to seven minutes, during which time he discharges one patient and prepares for the next. Treating large numbers of patients is one means by which we hope the students will become acquainted with the mode of operation of a dental practice.

FUTURE PROJECTIONS

Manufacturers would like to gain information from the dental profession con-

cerning the real desires for changes in dental equipment. Vanek⁸ observes that we now have "a hodgepodge of highly customized equipment, none of which is a correct solution to the problem because the problem has never been identified." We have formulated some criteria by which present dental equipment may be assessed. We have also considered other specific changes which may occur in the future.^{8,9} There is great potential, for example, for improving the dental operating light. Since the traditional dental unit has become unnecessary, alternative methods of attaching the operating light have been developed. Ceiling mounts and wall mounts are satisfactory, but no completely adequate method of attaching a light to the dental chair has yet been developed. Available lights are too large, too long and too heavy for efficient use when attached to the dental chair.

The serviced instruments (handpieces, syringe and evacuation system) are fixed to the floor as in the traditional dental unit, attached to the operating room wall, hung from the ceiling, mounted in mobile cabinets, or attached to the dental chair. Additional support is required for hand instruments, either with the serviced instruments or separately. It would be highly desirable if some compact arrangement could be developed which would house not only all the serviced instruments, but the tray for the hand instruments as well. Such a system could be supported in a number of ways and placed in a variety of locations in relation to the patient, dentist and assistant, depending upon the type of operation and the wishes of the individual dentist. It seems likely that equipment with extreme flexibility will be provided in response to the widely divergent demands of dentists.

Although the characteristics of high- and low-speed handpieces differ greatly at present, it should be possible to develop a single handpiece which will be adequate for all dental procedures. This radical step forward would immensely simplify dental equipment design. Moreover, it is likely that air and water hoses from the multi-purpose syringe could be built into the handpiece, since a separately controlled air line (or chip-blower) is already available. Romano⁹ suggests that

the handpiece should also contain an evacuation tube. In short, the potential exists for having a single instrument which can perform the functions of all the present serviced instruments. Such a handpiece, although highly desirable, is probably a long way off in the future. Nevertheless, it still seems an appropriate goal to set for design engineers and dental manufacturers.

Rubber dam is widely used to isolate the operating field in dental treatment. It also seems reasonable to require that an aseptic, isothermal and isotonic environment be provided for living tooth tissue. But, furnishing a stream of water and an air-water spray mixture which are both isothermal with the tooth surface presents rather formidable engineering difficulties. Supplying an isotonic environment for the dentinal tubules is probably simpler. It is also conceivable that additives might be incorporated in a cooling and lubricating fluid to improve the cutting of the various hard tissues encountered. This has long been standard industrial practice in cutting ceramics and metals.

A recent article¹³ has demonstrated room for significant improvements in the design of dental x-ray equipment. In addition, we believe that further measures are necessary to reduce the time required for the traditional tasks that follow film exposure. Radiographs are crucial not only in certain acute situations, but also in the routine admission of patients. Until such time as instant developing becomes practicable, we have adapted a hospital type rapid x-ray processing machine for use with dental radiographs. Various means have been tried to speed up the processing of radiographs, including the packaging of x-ray film with self-contained solutions and the provision of small heaters for quantities of rapid acting chemicals.¹⁴ None of these systems is particularly satisfactory for routine use, but automatic processors suitable for use in dental offices are becoming available.¹⁵ Considerable time is also lost in the removal of film from the film packet. It should be possible to produce x-ray film with an opaque coating which would

dissolve or become transparent when exposed to the basic environment of the developer or the acidic environment of the fixing solution.

CONCLUSIONS

Despite many recent innovations, the design of major dental equipment remains wide open to further modification. This poses a serious problem for persons charged with equipping a new dental school. The most up-to-date equipment installed now may become obsolete in an exceedingly short time. Rapid technological changes supplemented by expanding goals in dental education and practice necessitate the utmost flexibility in the design and arrangement of dental equipment, whether in a dental school or dental office. Such equipment must also conform to functional and aesthetic requirements. Within the limits of feasibility, these objectives have been met at the University of British Columbia.

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Gingival health and dental health attitudes in 766 Winnipeg high school students

Gingival health and dental health attitudes were studied in 766 Winnipeg high school students from three socio-economic strata. Girls aged 16-19 had better gingival health than boys, indicating that gingivitis was related to sex rather than age. Gingivitis was significantly affected by the quantities of *materia alba* and calculus present. Under similar conditions of *materia alba* and calculus, girls appeared to be more resistant to gingival disease than boys. Gingivitis was also directly related to the standard of oral hygiene, but lip posture influenced the gingiva less than anterior crowding. Sociological factors contributed to the observed variations in gingival disease. Students who could afford and demanded dental care had lower gingival scores. The majority of the students also favoured water fluoridation.

■

Cette étude des affections gingivales et des attitudes envers l'hygiène dentaire a été effectuée sur 766 écoliers de Winnipeg appartenant à trois niveaux socio-économiques différents. Entre 16 et 19 ans, l'état des gencives est meilleur chez les filles que chez les garçons, ce qui indique que la gingivite est liée au sexe plus qu'à l'âge. La présence de débris alimentaires et de tartre joue un rôle important dans la gingivite. Pour des quantités égales de débris alimentaires et de tartre, les filles semblent résister mieux que les garçons aux affections gingivales. La gingivite est aussi directement liée au niveau d'hygiène buccale, mais la posi-

tion des lèvres affecte moins la gencive que le chevauchement des incisives. Les variations observées dans l'état des gencives sont attribuables aux facteurs sociologiques. Ceux qui peuvent se payer des soins dentaires et qui le font, ont les gencives en meilleure santé. La majorité des écoliers est en faveur de la fluoruration.

This report stems from a survey of 766 Winnipeg high school students designed primarily to elicit information about isolated gingival recession around the lower incisors and chronic gingival hyperplasia around the upper incisors. The incidence of these two conditions as well as an analysis of the presumed aetiology has already been reported.^{1,2} As part of this survey we recorded the condition of the gingiva, oral hygiene, *materia alba*, and calculus.

Few previous surveys have dealt adequately with the age group 14 to 19³ although considerable work has been done on children up to age 12.^{4,5} Though surveys of particular groups, such as Heylings' investigation of all new undergraduate students entering the University of Leeds,⁶ are useful as to methodology and results, they do not necessarily reflect the gingival health of this age group in the population as a whole. We therefore tried to select for our study a random sample of an urban population in the age range 14 to 19 years.

Many dentists presume that gingival health is influenced by attitude toward

dental care. Moreover, it is widely believed that persons from the more affluent strata of society have greater opportunity to obtain dental care and thus have less gingival disease. We wanted to establish whether or not this is true.

Richards et al⁷ recently reported the results of a survey of dental health and attitudes toward dentistry in two English communities. They were dealing with an adult population in two separate towns. Our study is an analysis of adolescent attitude toward dental care and dental health within a single urban community. The data and conclusions are based on information derived from subjects of varying socio-economic background who reside within the same city.

METHODS

Socio-Economic Stratification.—A random 10 per cent sample of Winnipeg high school students attending the nine high schools administered by the Winnipeg school board was examined using the methods described by Trott and Love.¹

The schools were divided into three groups corresponding to the districts used by the Winnipeg Finance Department for realty tax purposes (Table 1). District A

properties have generally a higher realty tax value than those in district B, while district C properties are taxed considerably less. There are more business properties in district B than C; this difference is therefore accentuated when one considers private residential property taxes only. Consequently, the private property realty tax is actually lower in district B and higher in district A than the combined realty taxes cited in Table 1. A reasonable division of school students can be made on this basis.

Lip Posture.—The rest position of the lips was noted by asking the subjects to sit upright, wet their lips with the tongue, swallow, and then observe the lip posture assumed.² If the lower lip contracted to obtain closure, it was gently stroked with the thumb to relax the muscles. Thereafter, the habitual rest position of the lips was recorded. The presence or absence of lip closure was noted while the subject was in this relaxed state. If the lips were open, the degree of aperture was measured by how much of the central incisor was visible. Subjects were then divided into two groups: (1) those with the incisal and middle third of the crown showing and (2) those where the whole tooth and marginal gingiva could be seen.

TABLE 1 Classification of 766 Winnipeg high school students who participated in this study.

Attribute		Male n	Female n
District A (realty tax \$11,260)		102	91
District B (realty tax \$10,500)		124	146
District C (realty tax \$5,200)		167	146
Gingival score:	1	110	173
	2	90	87
	3	86	72
	4	97	51
Materia alba:	none-slight	341	291
	moderate-severe	42	92
Oral hygiene:	good	162	246
	fair	187	124
	poor	34	13
Anterior crowding:	yes	91	111
	no	292	272
Lip position:	open	107	138
	closed	276	245

TABLE 2 Relationship of gingivitis to age and sex.

Gingival score	14-15 years				16 years				17-19 years			
	M	F	X ²	p	M	F	X ²	p	M	F	X ²	p
1	53	75	3.85	N.S.	24	54	11.5	<0.01	33	44	1.57	N.S.
2	28	40	2.12	N.S.	27	31	0.28	N.S.	35	16	7.08	<0.01
3	34	23	2.12	N.S.	28	30	0.07	N.S.	24	19	0.58	N.S.
4	30	22	1.23	N.S.	41	19	8.07	<0.01	26	10	7.11	<0.01

Gingivitis and sex: independence test.

Sex	Gingival score			
	1	2	3	4
M	110	90	86	97
F	173	87	72	51

X² = 7.81
p < 0.01

Gingivitis and age: independence test.

Age	Gingival score			
	1	2	3	4
14-15	128	68	57	52
16	78	58	58	60
17-19	77	51	43	36

X² = 2.12
p < 0.5 N.S.

Materia Alba.—The amount of food debris present around the maxillary gingiva was graded as slight if less than four of the six anterior teeth showed debris at the cervical third of the buccal tooth surface on visual examination. The grading was moderate to severe if more than four teeth were involved and if more than the cervical third of the buccal aspect was affected.

Calculus.—Supragingival calculus was graded as slight if it could only be observed interproximally. The grading was severe if calculus extended to the labio-proximal tooth surface or occupied more than the cervical third of the interproximal tooth surfaces.

Oral Hygiene.—The standard of oral hygiene was assessed according to the method of James et al⁴ by observing the whole mouth and gingiva as far as possible. Since our survey was conducted approximately one to two hours after lunch, there had to be some latitude in this assessment.

Oral hygiene was considered good if the teeth were generally clean, with little occlusal or gingival food debris, no active open carious lesions, and if the mouth appeared to be in good condition.

Oral hygiene was graded poor if materia alba was generally present, more than two open carious cavities and stain were present on labial and lingual tooth

surfaces, and if the mouth seemed neglected.

Children excluded from the two preceding groups were graded as fair. Their standard of mouth cleanliness was neither noticeably good nor appallingly bad. They had some materia alba and stain but not to a marked extent.

Gingivitis.—The method for assessing gingivitis in this survey with three examiners had to be simple. When more than one examiner is used, the general trend of a disease pattern can be formulated but the grouping must be minimal.⁸ Our method of examination with a wooden tongue spatula has been described previously.² No mirrors or probes were used. Examination was limited to the maxillary gingiva from cuspid to cuspid only. No attempt was made to detect pockets or assess the posterior gingiva. We agree with Wade⁹ that examination of the anterior gingiva only may produce a lower score. Our results should therefore be considered conservative.

Gingivitis was divided into four grades of severity:

Group 1 included subjects with the papillary gingiva affected only or not at all.

Group 2 embraced subjects with the papillary gingiva and some areas of the marginal gingiva affected by early inflammation.

Group 3 subjects exhibited definite signs of gingivitis in the papillary and marginal gingiva throughout the entire cuspid to cuspid area.

Group 4 subjects showed definite signs of gingivitis in the papillary, marginal and attached gingiva.

Pre-study test examinations of groups of 20 dental and dental hygiene students familiarized the three examiners with this classification and diminished any likelihood of examiner conflict in groups two and three.

Questionnaire.—A number of questions were presented to the students in a questionnaire to obtain information regarding attitudes toward dentistry and dental health care. The information obtained was subsequently transferred to Hollerith punch cards for analysis at a later date. Much of the information gathered regarding dental care could not be verified. Nevertheless, by preserving the respondents' anonymity, we hoped that they would have no reason to mislead us with their answers.

RESULTS

The chi square test was applied within and between groups to determine the statistical significance of observed trends. The tables present the raw data, and where there is a statistical significance, it has been taken at the 95 per cent level of significance.

Gingivitis, Age and Sex.—First, we tested differences between the sexes in each age group having the same degree of gingival disease (Table 2). There was no significant divergence between 14-15 year old males and females. At 16 years, however, definite differences emerged. Here, many more girls than boys had a gingival score of one, and many more boys than girls had a gingival score of four. These differences were statistically significant. In effect, 16 year old females had significantly better gingival health than males. Significant sex differences were also observed in the 17-19 year age group where, at gingival scores of two and four, more boys than girls were affected. In this age group, too, females had better gingival health than males. The chi square test indicated that gingivitis is independent of age but not of sex. The observed trend whereby males had worse gingival health than females was significant at the 95 per cent level.

Gingivitis, Materia Alba, Calculus and Oral Hygiene.—In the group with none to slight materia alba, we detected a significant sex difference at a gingival score of one, where more girls than boys had better gingival health (Table 3). In the group with moderate to severe materia alba, there were significant sex differences at gingival scores of three and four. Here, considerably more boys than girls were affected. Obviously, females had better gingival health than males and

TABLE 3 Relationship of gingivitis to material alba.

Gingival score	None to slight materia alba				Moderate to severe materia alba			
	M	F	X ²	p	M	F	X ²	p
1	99	162	15.2	<0.01	11	11	0	N.S.
2	76	81	0.16	N.S.	14	6	3.2	N.S.
3	62	62	0	N.S.	24	10	5.76	<0.05
4	54	36	3.6	N.S.	40	15	11.36	<0.01

Materia alba: independence test.

Materia alba	Gingival score			
	1	2	3	4
None-slight	261	157	124	90
Moderate-severe	22	20	34	55

X² = 67.9
p<0.01

fewer females had moderate to severe materia alba. The chi square independence test showed that gingivitis is substantially affected by the amount of materia alba present (rejection of the null hypothesis at the 95 per cent level).

In the group with none to slight calculus, there was no statistically signifi-

TABLE 4 Relationship of gingivitis to calculus.

Gingival score	None to slight calculus				Moderate to severe calculus			
	M	F	X ²	p	M	F	X ²	p
1	102	166	15.28	<0.01	8	7	0.07	N.S.
2	82	84	0.024	N.S.	7	3	1.6	N.S.
3	78	70	0.43	N.S.	8	2	3.6	N.S.
4	77	43	9.63	<0.01	21	8	5.82	<0.01

cant difference between boys and girls at gingival scores of two and three (Table 4). Significant sex differences did, however, emerge at gingival scores of one and four, more girls than boys having a gingival score of one, and more boys than girls having a gingival score of four. This indicated that females had better gingival health than males even though the same amount of calculus was observed in both sexes. In the group with moderate to severe calculus, we observed the only significant sex difference at a gingival score of four where many more boys than girls were affected. The chi square independence test showed that gingivitis is related to the amount of calculus present (rejection of the null hypothesis).

In the group with good oral hygiene, there were considerably more girls with a gingival score of one (Table 5). In the two groups with fair and poor oral hygiene, there were more boys with a gingival score of four. Evidently, more females than males had good oral hygiene and a low gingival score. This pattern reverses as oral hygiene habits deteriorate; consequently, more males than females then had a gingival score of four. The chi square independence test substantiated the relationship between gingivitis and oral hygiene. As oral hygiene habits deteriorated, more subjects had higher gingival scores.

Gingivitis, Anterior Crowding and Lip Posture. — We tested the relationship between gingivitis and anterior crowding by grouping boys and girls with corresponding gingival scores in the two major categories — those with and without crowding (Table 6). Those with anterior crowding were more prone to gingivitis than those without. Additionally, in both major categories, many more girls than boys had a gingival score of

Calculus: independence test.

Calculus	Gingival score			
	1	2	3	4
None-slight	268	168	148	120
Moderate-severe	15	10	10	29

X² = 30.12
p < 0.01

one. Conversely, in the group with no crowding, many more boys had a gingival score of four. The inference is that tooth crowding does have an effect on gingivitis. Moreover, females with healthier gingiva predominated in subjects with crowded and uncrowded teeth.

The reverse obtained in the case of the lip position and gingivitis (Table 7). Boys and girls with corresponding gingival scores were grouped in two main categories of lip posture (closed or apart). As gingival scores did not differ appreciably in the two categories, lip position and gingivitis are seemingly unrelated. There were, however, significant differences between the sexes. In the group with closed lips, many more boys had a gingival score of four, while in those with lips apart, many more girls had a gingival score of one. Obviously, the negative relationship between lip posture and gingivitis permitted more females than males to have the lower gingival score.

School District, Gingivitis and Prophylaxis. — In Table 8, we searched for sex differences in gingival health in each school district. We also tested a possible relationship between the number of subjects with high gingival scores and the school district where they resided.

Statistically significant differences were observed in districts A and B, where more girls had a gingival score of one and fewer girls had scores of three and four. Once again, there were more fe-

TABLE 5 Relationship of gingivitis to oral hygiene.

Gingival score	Oral hygiene good				Oral hygiene fair				Oral hygiene poor			
	M	F	X ²	p	M	F	X ²	p	M	F	X ²	p
1	73	143	22.7	<0.01	35	28	0.78	N.S.	2	2	0	N.S.
2	46	54	0.64	N.S.	42	32	0.20	N.S.	2	1	—	N.S.
3	25	30	0.45	N.S.	53	39	2.13	N.S.	8	3	0	N.S.
4	18	18	0	N.S.	57	26	11.57	<0.01	22	7	7.75	<0.01

Oral hygiene: independence test.

Oral hygiene	Gingival score			
	1	2	3	4
Good	216	100	55	36
Fair	63	74	92	83
Poor	4	3	11	29

X² = 12.59
p<0.01

males with healthier gingiva than males. Inter-district comparisons revealed significantly more individuals with higher gingival scores in district C.

An intra-district comparison was made between the sexes and time lapse since receipt of the last prophylaxis (Table 9). The only significant difference emerged in district A where more boys had received a prophylaxis during the preceding 1½-2 years. But the chi square independence test of combined boys and girls in each school district disclosed significant inter-district differences. Evidently, residents in district C sought a prophylaxis either not at all or less frequently than residents in district A.

Gingivitis, Prophylaxis and Toothbrush Purchasing.—Despite fairly marked sex differences observed in the occurrence of gingival disease under previously described circumstances, there was relative uniformity in the pattern of subjects at each gingival score level and the time lapse since receipt of the last prophylaxis (Table 10). As expected, girls with a gingival score of one predominated in the 0-6 month time lapse group, whereas boys with a score of four predominated in the 18+ month time lapse group. The chi square independence test showed significantly more individuals with high gingival scores in the 18+ month time lapse group than in the 0-6 month group. Evidently, frequent prophylaxis depressed the gingival score.

In a separate analysis (Table 11) we compared gingival scores in the two sexes with the time lapse since the subjects last purchased a toothbrush. Girls with a gingival score of one again predominated in the 0-6 month and 6-18 month time lapse groups, whereas boys with a score of four predominated in the 18+ month time

TABLE 6 Relationship of gingivitis to anterior crowding.

Gingival score	Crowding				No crowding			
	M	F	X ²	p	M	F	X ²	p
1	16	40	10.3	0.01	94	133	11.35	0.01
2	26	23	0.18	N.S.	64	64	0	N.S.
3	23	21	0.10	N.S.	63	51	1.26	N.S.
4	26	27	0.02	N.S.	71	24	23.2	0.01

Anterior crowding: independence test.

Crowding	Gingival score			
	1	2	3	4
Yes	56	49	44	53
No	227	128	114	95

X² = 13.45
p<0.01

lapse group. The chi square independence test of combined boys and girls in each time lapse group disclosed a significant relationship between the time intervals and gingivitis. Those who bought a toothbrush during the preceding six months had better gingival scores than

those who bought a toothbrush 18 or more months ago.

We also presumed that economic considerations might influence the frequency of purchasing a new toothbrush, but Table 12 shows that this is not so. Nevertheless, females are generally more conscientious about using their toothbrushes than are males (Table 13). The two most marked differences occur before retiring and before going out on 'a date.'

Fluoridation.—One portion of the questionnaire tried to ascertain attitudes toward fluoridation. The question was worded so as to leave no doubt in the respondents' minds about the relationship between water-borne fluoride and the incidence of dental caries. There was only a 5 per cent difference between favourably disposed males and females in each district (Table 14). More males than females favoured fluoridation in districts A and C; the reverse obtained in district B. In all districts over 70 per cent of the respondents approved water fluoridation. The percentage of those against fluoridation was relatively constant in all three districts and quite similar in both sexes.

DISCUSSION

There have been few detailed periodontic studies of the population in the age

verity of the gingivitis decreased quite markedly in both sexes after age 14 and rose again at age 17. Marshall-Day et al³ surveyed a population in Boston ranging in age from 13 years to over 60 years. These people were participating in a multiphasic health protection program. From the subsequent report³ it is difficult to gauge how accurately the participants reflected the true socio-economic stratification of Boston. Nevertheless, the trends that emerged from the Marshall-Day study followed the pattern of Parfitt's work both in the severity of gingivitis as well as the percentage of those affected. Unfortunately, Marshall-Day only examined 215 subjects between the ages of 13 and 18. He obtained little other information that is directly applicable to our study.

If hormonal influence were solely responsible for the decline observed at age 16 in females with a gingival score of one, we would have expected to see more girls with higher scores at this age than we did. In fact, the general trend toward higher scores with advancing age is more indicative of sociological sex differences than anything else. Differences in male and female toothbrushing habits lend support to this view. As expected, direct local irritation by materia alba and calculus has quite a profound effect on gingival scores in both sexes. Nevertheless, males and females differ noticeably in the degree of response to local irritation

TABLE 7 Relationship of gingivitis to lip position.

Gingival score	Lips closed				Lips apart			
	M	F	X ²	p	M	F	X ²	p
1	82	106	3.06	N.S.	28	67	16.0	<0.01
2	71	62	0.61	N.S.	19	25	0.82	N.S.
3	57	46	1.46	N.S.	29	26	0.19	N.S.
4	66	31	12.6	<0.01	31	20	2.37	N.S.

range 14 to 19. Parfitt¹⁰ reported a five year longitudinal study of a group of children aged two to 17 who were living in an English institution. In the age range that we examined he found between 75 to 95 per cent of the children had some degree of gingivitis. Girls also had generally better gingiva than boys. The se-

Lip position: independence test.

Lips	Gingival score			
	1	2	3	4
Closed	188	133	103	97
Apert	95	44	55	51

X² = 5.62
p<0.3 N.S.

TABLE 8 Relationship of gingivitis to school district.

Gingival score	District A				District B				District C			
	M	F	X ²		M	F	X ²	p	M	F	X ²	p
1	32	44	4.05	<0.05	30	62	11.1	<0.01	48	67	3.14	N.S.
2	25	26	0.02	N.S.	27	31	0.27	N.S.	38	30	0.94	N.S.
3	27	13	4.9	<0.05	28	32	0.27	N.S.	31	27	0.27	N.S.
4	18	8	3.84	<0.05	39	21	5.4	<0.01	40	27	2.52	N.S.

School district: independence test.

School district	Gingival score			
	1	2	3	4
A	76	51	40	26
B	92	58	60	50
C	115	68	58	67

X² = 14.61
p < 0.01

and one wonders whether females in this age range are less susceptible to gingival disease than males.

Anterior crowding, as one might expect, also affects gingivitis; but again the results are disproportionate in the two sexes, more girls than boys having a gingival score of one. Interestingly, a similar pattern prevails in subjects who do not have anterior crowding. Again, this raises the question of whether females have greater resistance to gingival disease when identical aetiological factors operate in both sexes.

In this study, lip posture did not significantly affect the number of subjects at each gingival score level. This corroborates an earlier observation by Trott and McCallum² who failed to establish a causal relationship between lip posture and hyperplastic gingivitis.

If there are real socio-economic differences between the residents of districts A and C, then the results of this study are significant. It follows that persons who can pay for dental care seek and obtain it more frequently than those who cannot afford it. Subsequently, the recipients of more frequent dental care have better gingival health. Gingivitis is affected by the time lapse since the receipt of the last prophylaxis, but this in turn is influenced by socio-economic considerations.

Chronic periodontic disease is frequently an extension of chronic gingivitis. Consequently, the reduction of chronic gingivitis through prophylaxis and adequate home care denotes preventive den-

TABLE 9 Distribution of subjects by time lapse since subjects received their last prophylaxis in each district.

Time lapse	District A				District B				District C			
	M	F	X ²	p	M	F	X ²	p	M	F	X ²	p
0-6 mo.	27	35	1.03	N.S.	30	38	0.94	N.S.	32	33	—	N.S.
6-18 mo.	21	19	—	N.S.	20	33	3.19	N.S.	26	36	—	N.S.
18-24 mo.	19	7	5.54	<0.02	25	29	—	—	43	28	3.17	N.S.
Nil	35	29	0.56	N.S.	48	47	—	—	57	49	0	N.S.

School district and prophylaxis time lapse: independence test.

School district	Time lapse (months)			
	0-6	6-18	18-24	Nil
A	62	40	26	64
B	68	53	54	95
C	55	62	71	106

X² = 15.84
p < 0.01

tistry in a very real sense. If frequent prophylaxis and good oral hygiene instruction had been available to all of the subjects we examined, the differences found would have been less apparent.

As Richards et al⁷ point out, very little is known about the attitude of the general public toward dental health. Public reaction to fluoridation plebiscites is notorious for its variability from one cen-

TABLE 10 Relationship of gingivitis to time lapse since the last prophylaxis.

Gingival score	0-6 mo.				6-18 mo.				18 mo. +			
	M	F	X ²	p	M	F	X ²	p	M	F	X ²	p
1	24	49	8.56	<0.01	18	43	10.24	<0.01	67	81	1.32	N.S.
2	28	28	0	N.S.	14	22	1.78	N.S.	50	37	1.94	N.S.
3	21	19	0.1	N.S.	22	14	1.78	N.S.	51	39	1.60	N.S.
4	16	12	0.57	N.S.	13	9	0.73	N.S.	59	30	9.45	<0.01

tre to another. Winnipeg water has been fluoridated since 1956 and one might assume that the whole population has learned to accept this fact by now. Nevertheless, like Richards et al, we encountered some variation in the attitudes displayed by the two sexes in each district. In the British study, more males than females were favourably disposed toward

Prophylaxis time lapse: independence test.

Time lapse	Gingival score			
	1	2	3	4
3-6 mo.	73	56	40	28
6-18 mo.	61	36	36	22
18 mo. +	148	87	90	89

X² = 14.65
p<0.01

TABLE 11 Relationship of gingivitis to time lapse since the last purchase of a toothbrush.

Gingival score	0-6 mo.				6-18 mo.				18 mo. +			
	M	F	X ²	p	M	F	X ²	p	M	F	X ²	p
1	85	118	5.36	<0.05	13	39	13.0	<0.01	11	15	0.62	N.S.
2	60	62	0.03	N.S.	14	8	1.64	N.S.	17	17	0	N.S.
3	51	44	0.52	N.S.	22	15	1.32	N.S.	13	13	0	N.S.
4	61	32	9.04	<0.01	17	11	1.28	N.S.	19	8	4.48	<0.05

fluoridation. Winnipeg districts A and C reflected a similar pattern. Again, in one community in the British study, more females than males objected to fluoridation, whereas the trend was reversed in the other community. In Winnipeg districts A and C, more males than females objected to fluoridation. This pattern was only reversed in district B.

Toothbrush purchasing time lapse: independence test.

Time lapse	Gingival score			
	1	2	3	4
0-6 mo.	203	122	95	93
6-18 mo.	52	22	37	28
18 mo. +	26	34	26	27

X² = 18.05
p<0.01

SUMMARY

- 1. Survey results of the gingival health in 766 Winnipeg high school students have been statistically analysed.
- 2. More females than males had lower gingival scores in the 16-19 year old group. No significant sex differences were observed in the 14-15 year old group.
- 3. Gingivitis was definitely associated with sex but not with age.
- 4. Gingivitis was directly related to materia alba and calculus. More females had a lower gingival score than males.

- Possibly, girls may have greater resistance to gingival disease even when the same amount of calculus and materia alba is present in both sexes.
- 5. Gingivitis was also directly related to the standard of oral hygiene. More females than males had a low gingival score with good oral hygiene. The converse pertained for subjects with fair and poor oral hygiene.
 - 6. Gingivitis was affected by anterior crowding but not by lip posture.
 - 7. Subjects who could afford and demanded dental care had a lower gingival score. Socio-economic factors had a di-

TABLE 12 Time lapse since subjects bought their last toothbrush in each district.

Time lapse	District A				District B				District C			
	M	F	X ²	p	M	F	X ²	p	M	F	X ²	p
6 mo.	77	65	1.01	N.S.	76	88	0.89	N.S.	98	95	—	N.S.
18 mo.	13	15	0.15	N.S.	23	32	1.47	N.S.	29	28	—	N.S.
2 yrs.	6	1	—	N.S.	7	8	0.07	N.S.	11	8	.47	N.S.
Don't know	6	9	0.6	N.S.	17	19	0.11	N.S.	20	15	.71	N.S.

School district and toothbrush purchasing time lapse: independence test.

School district	Time lapse			
	6 mo.	18 mo.	2 yrs.	Don't know
A	142	28	7	15
B	164	55	15	36
C	193	57	19	35

X² = 10.13
p < 0.3 N.S.

TABLE 13 Oral hygiene practice.

Subjects brush teeth	Males %	Females %
After breakfast	54.0	65.0
After dinner	25.2	44.5
Before retiring	56.1	80.4
Before going on a date	45.1	86.0
Occasionally	14.6	2.0

TABLE 14 Attitudes toward fluoridation in each district.

District	Favour	Oppose	Indifferent
Males			
District A	83.3	4.0	12.7
District B	81.5	3.1	15.4
District C	78.5	5.7	15.8
Females			
District A	76.5	2.2	21.3
District B	87.0	4.2	8.8
District C	71.0	3.0	26.0

rect influence on the time lapse since the receipt of the last prophylaxis. Gingivi-

tis was likewise influenced by the time that had elapsed since the last purchase of a toothbrush.

8. Toothbrush purchasing, however, was not affected by socio-economic factors.

9. These observations suggest that sociological factors play an important role in the gingival health of Winnipeg high school students.

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From the Department of Oral Pathology, Faculty of Dentistry, University of Manitoba, Winnipeg. This study was supported by National Health Grants 01-267-31 and 01-267-64.

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Clinical evaluation of a jet injector for local anaesthesia

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An ideal jet injector should produce rapid and total anaesthesia, be painless, be free from side effects, have lasting power, be easily sterilized, deliver a penetrating jet finer than a 27 gauge needle, and possess accurate and variable dose adjustments. The Panjet, partially fulfils these objectives. The instrument provides complete and effective loss of sensation at the site of subsequent hypodermic needle insertion. Labial and buccal infiltrations had to be discontinued on account of bleeding which followed the application of the jet injector at the mucobuccal fold.

La seringue sans aiguille idéale doit procurer une anesthésie rapide et sans douleur, ne pas provoquer d'effets secondaires, être d'une efficacité durable et d'une stérilisation facile, lancer un jet plus fin qu'une aiguille gauge 27, enfin offrir la possibilité d'un ajustement précis des doses. Le Panjet répond en partie à ces qualités. Il procure une perte de sensation complète dans la zone où il est appliqué et où une aiguille hypodermique peut ensuite être insérée. Les infiltrations buccales et labiales peuvent être contre-indiquées à cause de l'hémorragie qu'entraîne parfois l'usage du Panjet dans la région du repli muqueux.

During the past decade and a half, the dental profession has made significant strides in advancing treatment procedures, thereby enhancing its public image. By adopting new materials, instruments and techniques, the dentist has improved the relations with his patients. In spite of this progress, some traces of past attitudes towards dentistry still persist. Manifesting as hesitation, apprehension, anxiety or simply fear, these attitudes are plainly evident in the field of local anaesthesia. Conventional local anaesthesia has

aided the practice of dentistry immeasurably by increasing the patient's comfort during treatment. Nevertheless, many patients continue to dread the 'needle.' This fear is out of all proportion to the pain of penetration. Consequently, the patient is more distressed by the administration of the local anaesthetic than by the ensuing treatment. Although there have been improvements in the composition of anaesthetic solutions and in the physical qualities of hypodermic needles (reduced diameter, greater flexibility,

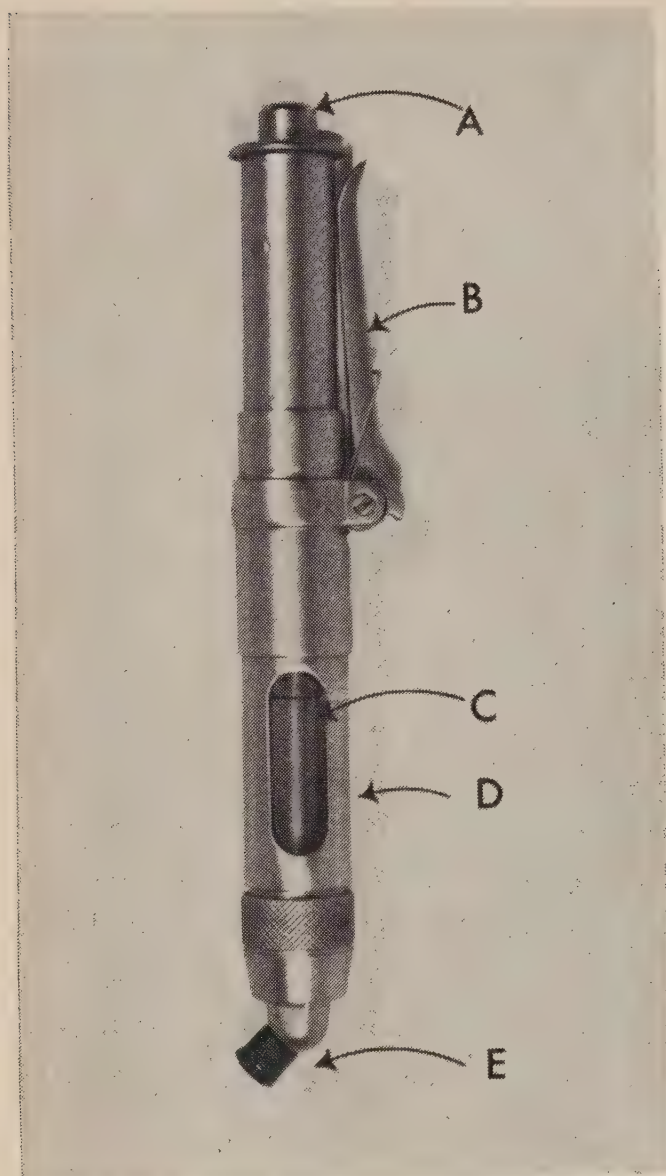


FIGURE 1 Panjet jet injector. A, release button. B, lever. C, glass tube. D, shaft. E, nozzle.

disposable needles), these have only provided minor solace as far as the patient is concerned. Basically, the method of administration has remained unchanged. A needle connected to a syringe remains a necessity and the realization that it will penetrate the tissue, especially in the mouth, is invariably a chilling experience for most patients.

Because local anaesthesia has evolved into an indispensable aid, its continued use is assured. The benefits of local anaesthesia far outweigh any disadvantages of the hypodermic needle or transient discomfort on the part of the patient. The challenge, therefore, is not to discontinue the use of local anaesthesia but rather to alter the method of administration. A step in that direction is the system whereby the anaesthetic solution

is introduced into the tissue without the use of a needle.¹⁻³ This is accomplished by forcing the solution under high pressure from a minute orifice in the form of a high velocity spray.

APPARATUS

One jet injector developed for this purpose is the Panjet (Winley-Morris Co. Ltd.) illustrated in Figure 1. This is a pen shaped instrument approximately seven inches long and three-quarters of an inch in diameter. Its main components are a rechargeable 5 ml. glass tube, a release button, a cocking arm and a nozzle with a rubber distance cone. The syringe is charged by activating the cocking lever which operates a spring mechanism. When used, the distance cone at the end of the instrument is placed lightly over the area to be infiltrated and the release button pressed. The syringe emits 0.1 ml. of anaesthetic under 31 lbs. of pressure through a nozzle orifice containing a perforated disc of 0.006 inch diameter. The solution pressure at the tissue is therefore less than 1 oz. per sq. inch. The rate of discharge is less than one second. It is the penetrative force and rate of discharge of the column of solution as it strikes the mucosa which is of importance, and not the pressure created by the spring mechanism. Thus, the anaesthetic enters the tissue in a spray column no larger than a 27 gauge needle. Because the tissue force of the anaesthetic is less than 1 oz. and the column can be compared to the diameter of needles in use today, this jet injector falls well within the tissue tolerance range of the oral mucosa (Figure 1).

CLINICAL TECHNIQUE

Spray injections were performed as follows: buccal and labial infiltration, mandibular sulcus infiltration, palatal infiltration and long buccal infiltration. After 20 injections, labial and buccal infiltrations were discontinued. The other infiltrations were continued until 100 injections were attained. These were per-

formed on both male and female patients of varied age groups. The treatment which followed was limited to operative dentistry. Each patient was given a general explanation as well as a visual demonstration of what the instrument was to accomplish. The patient was also asked to listen for the 'pop' sound when the release button was pressed. The injector was then placed lightly over the area to be infiltrated, the patient instructed to remain motionless and the release button pressed. After one minute, injection followed with a regular hypodermic needle syringe. The results were tabulated under the following headings: pain and/or sensation, reaction to noise of the instrument, size of entry wound and tissue bleeding, width and depth of anaesthesia, and pain on entry of the needle into the site of spray injection.

FINDINGS AND DISCUSSION

Pain and/or Sensation.—At first, most patients were apprehensive about the instrument's painless qualities. After each spray injection, however, the patients felt none of the pain associated with hypodermic injections. They all experienced a sensation of sudden pressure that lasted for only a fraction of a second; thus there was no real discomfort. In cases of extreme apprehension, the instrument helped the patient to gain confidence in himself as well as in the dentist. These patients then accepted the regular hypodermic syringe and also experienced no pain.

Reaction to Noise.—There was an overt reaction in every patient despite advance warning about the 'popping' sound and advance demonstration of the jet injector. This reaction manifested itself by slight head, arm or foot movements. Because the action of the instrument is so rapid, this movement had no effect on its performance. However, excessive movement of the head can cause laceration of tissue at the site of penetration. This occurred infrequently and thus posed no problem.

Dimension of Entry Wound and Tissue Bleeding.—Buccal and labial injections

produced the largest apertures, averaging 1 mm. in diameter. These large punctures caused excessive bleeding; for this reason labial and buccal infiltrations were discontinued.

In palatal infiltration, the site of entry was minute. Consequently, there was no evidence of bleeding.

Puncture size varied in the mandibular sulcus injections but never exceeded 0.5 mm. Bleeding, though never a problem, varied from none at all to a maximum of three drops. The average was one drop of blood.

Wounds and bleeding following long buccal infiltration were similar to those elicited with mandibular sulcus injections.

Although bleeding did occur at the various injection sites and in varying amounts, it posed no problem or objection to continued use. The puncture sites healed within one to two days; during this time the patients experienced no discomfort.

Width and Depth of Anaesthesia.—Following buccal, labial and long buccal infiltration, the tissue ballooned to a diameter that averaged 7 mm. The width of anaesthesia extended to 15 mm. and the depth of anaesthesia reached 5 mm. within one minute. Palatal infiltration did not cause any tissue ballooning. The average width of anaesthesia in this case extended to 10 mm. while the depth of anaesthesia penetrated through soft tissue and into the surface of underlying osseous structure. Mandibular sulcus injections raised the tissue at the site of injection slightly. Here, the width of anaesthesia averaged 5 mm. but depth of anaesthesia varied from 10 to 15 mm.

Pain on Penetration of Hypodermic Needle.—Because the depth of the anaesthesia varied from 5 mm. (labial injections) to 15 mm. (mandibular sulcus injections), additional anaesthesia could be obtained by conventional means in a painless manner. On insertion of the needle patients did not experience the usual pin prick. By depositing the anaesthetic ahead of the

needle point, anaesthesia was obtained painlessly.

Although the instrument is larger than a regular syringe, it is easily handled. All areas of infiltration were readily accessible. Generally, the instrument was held in a palm grip with the thumb on the release button. This was the most comfortable position for both patient and dentist.

OTHER USES

Spray injection anaesthesia without the aid of the conventional syringe was also successful in rubber dam application, gingival retraction and lancing an abscess.

Local anaesthesia is usually not required after an initial endodontic appointment; thus, subsequent placement of a rubber dam clamp at the gingival margin can be painful. Spray injection effectively eliminates such pain at the gingival attachment. Unlike mucobuccal fold infiltration, there is no bleeding when the spray is directed at healthy attached gingiva. Adequate anaesthesia is thus available for rubber dam clamp placement.

Successful rubber base impressions of prepared teeth depend on adequate gingival retraction. Here, the jet injector can aid in two ways: first, by eliminating pain at the retraction site and secondly, by controlling gingival bleeding. The spray anaesthetic containing a vasoconstrictor is deposited for 2-3 mm. around the gingival margin of the tooth and resultant capillary contraction inhibits bleeding.

The lancing of an abscess is a minor surgical procedure for the dentist. The patient, however, regards an abscess with due apprehension. Swelling, exquisite pain and the knowledge that a pointed instrument will be used add to his anxiety and fear. The spray emitted by the jet injector has enough force to puncture a pointed abscess, thus eliminating the need for a scalpel. The abscess is broken painlessly, and the patient is more cooperative to further treatment.

CONCLUSION

The jet injection technique is no panacea. The basic problem, however, is related to mechanics rather than to physiological tolerances. Industry has always been able to develop a product in response to a demonstrable need. But dentistry is a profession, not an industry. This may explain the tardiness in developing a needleless syringe.

An ideal jet injector should (a) produce rapid and total anaesthesia each time, (b) be painless, (c) be free from side effects, (d) have lasting power, (e) be easily sterilized, (f) deliver a penetrating jet that is finer than a 27 gauge needle, and (g) have accurate and variable dose adjustments.

The high velocity spray jet also eliminates certain useful features which we have come to accept in the hypodermic syringe. The sense of touch transmitted through the needle and syringe is no longer present; aspiration is no longer feasible, and the rate of injection cannot be controlled so that soft tissues are not separated gently by the anaesthetic fluid. But, there is no reason why these problems cannot be solved and an instrument developed which will fulfil the objectives outlined in the preceding paragraph.

The Panjet fulfilled these objectives partially. The instrument provided complete and effective loss of sensation at the site of subsequent hypodermic needle insertion. Adults and children accepted initial use of the instrument with minor apprehension and subsequently expressed a desire that it be used again. Despite these limitations, I consider this instrument a useful adjunct to local anaesthesia administered by hypodermic injection.

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The Association

New CFDE-CDA Appointment

J. D. McLean, chairman of the Canadian Fund for Dental Education, and CDA Immediate Past President J. P. Coupland have announced the appointment of D. Murray McDonald as CFDE executive director and CDA comptroller. Mr. McDonald assumed the dual position on June 1.



D. M. McDonald

A Torontonion, Mr. McDonald was vice-president and treasurer of the Wm. Wrigley Jr. Company Limited and brings to the Fund 32 years' business experience. In 1966 he was a section chairman of the Toronto United Appeal campaign.

Mr. McDonald's appointment was made at the annual meeting of the Canadian Fund for Dental Education which serves as the single national agency for collection and distribution of voluntary contributions in support of dental education. The Fund, started in 1962, operates on a non-profit basis to generate financial support for projects which are needed,

but not provided within present dental school budgets. Because of the urgent need for more teachers, CFDE continues to concentrate on recruiting faculty through dental teaching fellowships. To date, the Fund has helped or is helping 14 graduates to pursue careers in dental teaching. CFDE is strongly supported by the Canadian Dental Association and the dental industry.

Canada and the Provinces

Seventy-two Dentists Pass Royal College Fellowship Exam

Seventy-two dentists from all parts of Canada successfully passed the first fellowship examination conducted by the Royal College of Dentists of Canada last March. They were inducted as fellows of the Royal College at a convocation ceremony held May 13 in the University of Toronto's Convocation Hall.

Honorary fellowships went to H. M. Worth, Vancouver; J. W. Clay, Calgary; and M. H. Garvin, Winnipeg. Selected as charter fellows in the division of endodontics were C. Ames, Vancouver; and G. C. Hare, A. I. Arshawsky, E. C. Aho and A. H. Thomson, all of Toronto. The newly inducted fellows-by-examination are:

Oral Surgery: J. M. Armitage, Hamilton; B. K. Arora, Toronto; H. F. Biewald, Ottawa; A. Brown, Toronto; A. Charest, Quebec; G. Chesnay, Montreal; S. M. Claman, Winnipeg; W. B. Donohue, Montreal; S. J. Fisher, Victoria; J. A. Folkins, Vancouver; L. J. Frost, Ottawa; J. Z. Gajda, St. Catharines, Ontario; M. Gornitsky, Montreal; S. W. Leslie, To-

ronto; N. B. Lightford, Ottawa; R. K. Lindsay, Vancouver; W. H. Macneil, Halifax; J. F. Methven, Toronto; E. P. Millar, Montreal; P. L. Rondeau, Vancouver; I. D. F. Schofield, Hamilton; W. S. Schwetz, Islington, Ontario; E. Slapcoff, Montreal; A. D. Sparrow, Calgary; M. G. Streliaoff, Edmonton; R. S. Van Alstine, Edmonton; and S. Weinberg, Toronto.

Orthodontics: J. A. Bimm, Peterborough, Ontario; A. J. Colle, Montreal; M. J. Crompton, Moncton, New Brunswick; M. M. Derrick, Ottawa; D. A. Eisner, Halifax; D. Engel, Toronto; R. W. Faith, Montreal; A. Feldman, Toronto; A. A. Fraser, Vancouver; J. H. Giblon, Toronto; K. L. Hargadon, Ottawa; E. A. High, Vancouver; R. L. Landsberg, Toronto; J. A. Langmaid, Oshawa; J. E. Lemay, Sherbrooke, P. Quebec; B. J. Levin, Toronto; J. S. Little, Edmonton; R. P. Mullen, Edmonton; N. Munro, Toronto; Z. M. Pawliuk, Edmonton; F. Popovich, Burlington, Ontario; A. L. Posen, Toronto; M. Roberts, Toronto; R. B. Ross, Toronto; J. G. Ryan, Vancouver; J. J. Schachter, Saskatoon; H. W. Shanks, Toronto; A. Vachon, Ottawa; M. H. Wechsler, Montreal; E. J. Whyte, Sydney, Nova Scotia; D. G. Woodside, Toronto; and J. H. Young, Ottawa.

Periodontics: D. A. Anderson, Vancouver; G. A. Drennan, Vancouver; J. Findlay, Halifax; W. Fleming, Toronto; S. Golden, Toronto; R. N. Jack, Kitchener, Ontario; F. C. Lackie, Toronto; S. Newman, Toronto; F. J. Servos, Toronto; H. B. Squires, Ottawa; C. S. Whitman, London, Ontario; J. C. Whitney, Port Credit,

Ontario; J. A. Whyte, Ottawa; and A. N. Winnick, Toronto.

Prosthodontics: J. Nadeau, Montreal.

Paedodontics: C. R. Braaten, Vancouver (induction postponed); M. D. Char-endoff, Toronto; K. W. Davey, Toronto; G. M. Jinks, Vancouver; M. D. Klotz, Toronto; N. Levine, Toronto; F. Pulver, Toronto; and H. W. Sorenson, Toronto.

Alpha Omega Centennial Conference in Toronto Sept. 25-27

The Toronto Alumni Chapter of Alpha Omega Fraternity will sponsor an 'Alpha Omega Centennial Conference' September 25-27 at the King Edward Hotel, Toronto. Six internationally renowned Alpha Omega lecturers will present the following program:

MONDAY, SEPTEMBER 25

- 9:00 Maury Massler, University of Illinois: Changing concepts in prevention and treatment of dental caries
2:00 William Rackower, New York University: Exodontia and minor oral surgery

TUESDAY, SEPTEMBER 26

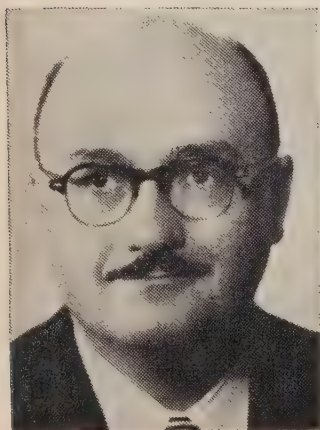
- 9:00 Irving Glickman, Tufts University: Occlusion in surgery in periodontics
2:00 Robert Sheldon Stein, Tufts University: Periodontic considerations pertinent to fixed prosthesis

WEDNESDAY, SEPTEMBER 27

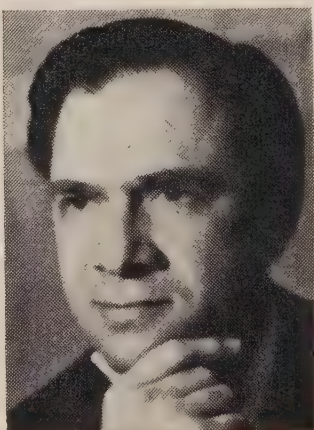
- 9:00 S. I. Silverman, New York University: Tissue conditioning in complete and partial dentures
2:00 Jack Kabcenel, New York University: Dynamic partial dentures

Invitations will be extended to the entire dental profession in Canada. Registration (\$25), limited to some 500 applicants, will be accepted in the order in

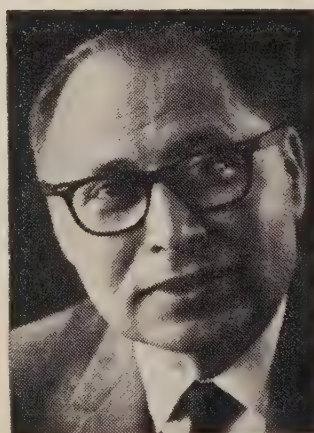
Maury Massler



William Rackower



Irving Glickman



R. S. Stein





S. I. Silverman



Jack Kabcenel

which requests are received. Proceeds from the conference will be donated to the Canadian Fund for Dental Education.

Further information may be obtained from H. J. Levin, Chairman, Alpha Omega Centennial Conference, 2006 Bathurst Street, Toronto 10, Ontario.

International Items

Special Conferences on History, Epidemiology, Practice and Teaching at Paris World Congress

Details of the following conferences and meetings at the FDI Paris World Dental Congress July 7-13 have been released by the Organizing Committee:

The Subcommittee on Dental History will meet on Saturday afternoon, July 8, at 2.00 p.m.

A conference on epidemiological studies of periodontic diseases is slated for Sunday July 9 at 9.00 a.m. A second conference on epidemiology of oral cancer and precancerous lesions begins at 10.30 a.m. that same day. A third conference on the conduct of controlled clinical trials is slated for Sunday afternoon, July 9, at 3.00 p.m. R. M. Grainger, Toronto, will be a participant.

Changing attitudes to dentistry will be the topic of an open discussion set for Monday morning, July 10, at 9.00 a.m. Elsewhere, discussion is scheduled on the topic of dental teaching. This will take place on Wednesday morning, July 12, at 9.00 a.m.

Finally, the International Association for

Dental Research will present scientific demonstrations on Wednesday afternoon, July 12, at 3.00 p.m.

Dr. Chaves Leaves WHO

Mario Chaves, chief of the World Health Organization's Dental Health Unit at Geneva, resigned his position at the end of March for personal reasons and has returned to his native Brazil. Dr. Chaves will participate in the dental public health program of the National School of Public Health, Rio de Janeiro.

Prior to his Geneva appointment, which he assumed in August 1963, Dr. Chaves served as the WHO regional dental adviser in the Americas.

Western Society of Periodontology in Vancouver July 9-11

Sessions on the future of periodontic practice, pathology, periodontic surgery and operative dentistry await members of the Western Society of Periodontology when they meet in Vancouver July 9-11. Locale of the meeting will be the Bayshore Inn. General practitioners will be welcome. Also included is a social program for ladies.

Reservation and registration may be obtained by writing to the Western Society of Periodontology, c/o the Bayshore Inn, Vancouver, British Columbia. The registration fee, including one lunch and one evening banquet, is \$40 for members of the society and \$50 for non-members. Ladies' registration, including an illustrated lecture, lunch, and banquet, is \$10.

Psychosomatic Dentistry Group to Meet in Quebec

The 18th annual meeting of the American Society of Psychosomatic Dentistry and Medicine will be held in conjunction with the Société Dentaire et Médicale d'Hypnose Clinique du Québec at Mont Gabriel Lodge, Mont Gabriel, P. Quebec, September 10-14. The registration fee is \$15.

For further information please write

to the ASPDM Co-ordinator, 964 Delaware Avenue, Buffalo, NY 14209, USA.

Oral Biology Meeting in California Set for October 20-24

The American Institute of Oral Biology will hold its 24th annual meeting October 20-24 at the Oasis Hotel, Palm Springs, California. The faculty will comprise:

B. N. Epker, DDS, Henry Ford Hospital, Detroit, Michigan, who will discuss bone remodelling and the development of osteoporosis, effects of fluoride on bone remodelling and the potential use of fluoride in the treatment of osteoporosis, and biochemical effects on bone structure;

G. F. J. Lehner, PhD, of the University of California at Los Angeles, whose topics will be personal and interpersonal influences and self-actualization, and promoting professional and personal growth;

Jean Mayer, PhD, professor of nutrition at the School of Public Health, Harvard University, Boston, who will discuss hunger, satiety, and the regulation of food intake, the role of exercise in health with particular emphasis on cardiovascular health and inborne errors of metabolism and their nutritional implications;

Karl Meyer, MD, PhD, professor of biochemistry at the College of Physicians and Surgeons of Columbia University, New York, who will discuss mucopolysaccharides and mucoproteins in some inherited diseases, mucopolysaccharides and the ageing process, and polydispersity and heterogeneity of mucopolysaccharides and mucoproteins; and

R. E. Stallard, DDS, PhD, who is professor and chairman of the Division of Periodontology at the School of Dentistry, University of Minnesota at Minneapolis. Dr. Stallard will lecture on development and differentiation of the gingiva and epithelial attachment, periodontic microcirculation and the gingival crevicular fluid, and periodontic disease and its relationship to pulpal pathology.

Participants at this meeting will receive prepared manuscripts well in advance of the sessions in order to allow

previous study. Discussion periods and additional 'forum discussions' will bring out the practical applications of the conference subjects to dental practice.

Further information and application forms may be obtained from J. A. Ducasse, 240 E. Lake Avenue, Watsonville, California, USA.

US Dental Schools Report Highest Ever Enrolment

More students are enrolled in American dental schools this year than ever before, despite the fact that most of these students now must spend eight years in pre dental and dental education.

R. L. Ireland of Lincoln, Nebraska, president of the American Association of Dental Schools, says that "The number of freshman students enrolled in the 49 US dental schools reached 3,942 this year, an increase of 3.7 per cent over the previous year. In addition, total enrolment jumped 3 per cent with 14,421 students presently enrolled in the four year dental curriculum."

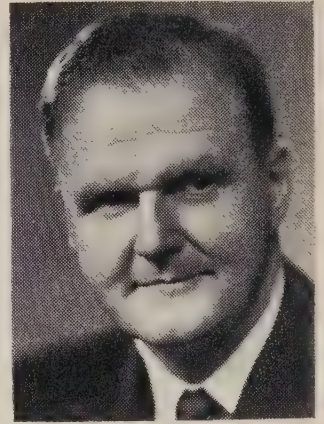
Dr. Ireland emphasized the trend toward four years of pre dental training. This year, he said, 62 per cent of US first year students had four years or more of college study prior to entering dental schools. Ten years ago, only 48 per cent of the dental students received four or more years of pre dental education.

Dental Organizations

Dr. Durand Heads Dental Group in Quebec

Jean-Claude Durand of Montreal was elected president of the Quebec Professional Association of Dental Surgeons earlier this year. Other executive officers elected at a meeting of the association's Board of Directors in Montreal are: Georges Lepage, Quebec City, first vice-president; Vincent Dontigny, Trois-Rivières, second vice-president; Hubert Labelle, Montreal, treasurer; and André Laurin, Montreal, secretary.

K. F. Pownall, Toronto, was recently appointed secretary of the Ontario Dental Association. He continues as registrar-secretary of the Royal College of Dental Surgeons of Ontario. A native Torontonian, Dr. Pownall served with the Junior Red Cross in Newfoundland during 1951-52. He practised in suburban Mimico prior to his appointment with the RCDS in February 1965. Dr. Pownall is a former chairman of the Dental Public Health Committee of the Ontario Dental Association. For many years he was associated with the Department of Paedodontics, Faculty of Dentistry, University of Toronto, and with the Dental Department of Toronto's Hospital for Sick Children.



The Quebec Professional Association of Dental Surgeons (formerly known as the Professional Association Syndicate) is a union-type organization formed late last year in Quebec (see p. 684, November 1966 Journal).

Dr. Yakasovich is President of Sault Ste. Marie Assn.

R. J. Yakasovich was recently elected president of the Sault Ste. Marie Dental Society. Other officers named were D. A. Santana, vice-president; D. A. Lalonde, secretary; E. L. Zaharuk, treasurer; and M. H. Wood, recording secretary. G. E. Westman is representative to the Ontario Dental Association.

Ottawa Dentists Elect Dr. Metrick

Lionel Metrick was installed as president of the Ottawa Dental Society April 14. He succeeds H. F. Biewald. H. C. Bugden was elected vice-president and G. G. Patenaude, secretary.

Canadian Dental Schools

Canadian Faculties of Dentistry Form Association

The groundwork was laid in Washington March 22 for the establishment of the Association of Canadian Faculties of Dentistry. This action was taken follow-

ing the annual meeting of the American Association of Dental Schools which was attended by deans and representatives of the Canadian dental schools. Following adoption of the formal motion to establish this new association, a proposed constitution was considered and adopted in principle.

J. W. Neilson, dean, University of Manitoba, Winnipeg, was chosen as first president of the association. Other officers elected were G. J. Parfitt, University of British Columbia, Vancouver, vice-president, and A. T. Storey, University of Toronto, secretary-treasurer. Members of the Executive Council are J.-P. Lussier, dean, Université de Montréal, and W. J. Dunn, dean, University of Western Ontario, London.

The Executive Council plans to meet early in the summer to complete further details relating to the formation of the association and it is anticipated that the first annual meeting will be held next March or April.

School Capacity on the Increase

Canada's eight dental schools can accommodate 375 undergraduate students in each of the four years of dentistry. Contributing to the slight increase over the 1965-66 capacity were the University of Western Ontario, which admitted its first dental class of eight students in September 1966, and the Université de Montréal which increased its capacity from 78 to 86. These facts emerge from a recent report by the CDA Bureau of Economic Research.



This picture records a recent historic event in the annals of Ontario dentistry. J. D. Purves (l.), president of the Royal College of Dental Surgeons of Ontario, signs the certificate of licensure admitting his son, W. T. Purves, to the practice of dentistry.

Further growth is in the offing and this is revealed in the plans of the following schools:

The University of British Columbia will increase its class size from nine to 40;

The new dental school at the University of Saskatchewan may accept an initial class in September 1968;

It is hoped that with the completion of the dental sciences building at the University of Western Ontario the dental faculty there will be able to accommodate 52 students;

Expansion plans for Dalhousie University's dental faculty are expected to be completed in 1970. This would provide accommodation for an additional 40 undergraduate students.

The proposed new dental school at Laval University may be able to graduate dentists by 1973 or 1974;

Accommodation for an additional 30 undergraduate dental students will become available when the University of Alberta's expansion plans are completed in 1972;

Beginning in 1975, the University of

Manitoba hopes to be able to enrol 50 students annually;

McGill University also hopes to increase the facilities of its dental school although plans have not yet been determined.

Neither the Université de Montréal nor the University of Toronto has plans to increase their undergraduate dental classes. Toronto's dental faculty has, however, submitted a brief to the president of the university stressing the need for expanded facilities for students in various diploma and degree courses. The school would like to triple its present capacity in order to accommodate 150 full-time students in these courses.

Dr. Paynter Outlines Plans for Saskatchewan Dental School

K. J. Paynter, who assumes his duties as dean of the new dental faculty at the University of Saskatchewan on July 1, hopes to have about 10 students in the first class starting in the fall of 1968. The school expects to have a capacity of 30 first year students each year. According to Dr. Paynter, this is a reasonable class size and it is geared to an estimate of Saskatchewan's dental needs.

In an interview with the *Saskatoon Star Phoenix* on March 13, Dr. Paynter said, "The school here will be unique in Canada because it is integrated more with medicine than any other dental school. No other university has anything to compare with the hospital on campus," he added.

The dental course at the new school will consist of two years of science, taken in the arts and science faculty, two years of preclinical dentistry, and two years of clinic training in the hospital, Dr. Paynter said. The course structure may be changed in the future as the medical faculty is considering changing from two years of premedical training to one year, allowing five years of work in the medical school. If this happens, the dental school will follow along.

A course for dental hygienists is planned for two years after the first students enter dentistry.

Dr. Paynter said that one of the big

problems facing the school is the shortage of qualified teaching staff available. So far no staff appointments have been made but it is hoped to have all key personnel chosen early next year. "We will recruit staff from wherever possible," he said. "This includes Canada, the US and Britain."

UBC Approves Hygienist Course

The University of British Columbia has given its approval to a proposed course for dental hygienists to be conducted at the UBC Faculty of Dentistry. Delays in the faculty's current building program are expected to delay inauguration of the dental hygiene course until September 1968.

New Orthodontic Appointment at UBC

C. S. C. Lear, of the Forsyth Dental Centre at Harvard University, Boston, has been appointed head of the orthodontic department in the University of British Columbia's Faculty of Dentistry. Dr. Lear, who begins his appointment July 1, has been named an associate professor.

A native of Christchurch, New Zealand, Dr. Lear received his bachelor's degree in dentistry at the University of New Zealand in 1953. From 1954 to 1958 he worked in New Zealand, England and South Africa. He joined the Forsyth Dental Centre in 1958 where he held various research posts and fellowships in orthodontics. He received his doctorate in dental medicine from Harvard in 1953 and has been an associate in orthodontics at the Forsyth Dental Centre since 1964.

Royal Canadian Dental Corps

Promotion

Canadian Forces Headquarters recently announced the following promotion:

J. P. Carrier: staff sergeant to lieutenant specialist officer. Lt. Carrier is presently employed at the RCDC School, Canadian Forces Base Borden, Ontario.



Lt.-Col. P. S. Sills was recently promoted from major to lieutenant-colonel. Lt.-Col. Sills is an instructor in the Royal Canadian Dental Corps School at the Canadian Forces Base Borden.

Two Officers Attend Courses

Two dental officers recently attended postgraduate courses. Maj. L. Dombowsky was enrolled in a course in oral surgery at ENT Air Force Base, Colorado, April 3-14. Maj. J. O. L. Bourget attended a course in operative dentistry at the University of Michigan, Ann Arbor, April 24-May 5.

Economics

Mr. Justice Hall Scores Lack of Dental Care

Canadians are in worse shape for dental than for medical care, Mr. Justice Emmett M. Hall told delegates to the Canadian and Ontario Public Health Association convention in Ottawa April 26. He said little had been done to remedy the situation because there has been no pressure on government.

The former chairman of the Royal Commission on Health Services claimed that dentists are scarcer than any other health workers. Apart from grants from the Health Resources Fund toward two new dental schools, little has been done. He said that church, labour, farm and other national organizations push until something happens in the medical field, whereas this action is lacking in the dental field.

Mr. Justice Hall urged that more women enter dentistry. He also reiter-

ated his commission's proposal for training dental auxiliaries to care for children's deciduous teeth, including filling cavities. For this he envisaged two years of training in polytechnical institutes or community colleges, but not university, after grade 12. Sending a girl to university for two years to become a dental hygienist to do simple procedures is a waste of time when the same girl in a two year period can be trained to do fillings and handle current available equipment just as well as any man, he said.

Ontario Assn. Advocates Wider Benefits for Welfare Recipients

The Ontario Dental Association, in a brief presented to the provincially-appointed Committee on the Healing Arts, has asked that dental benefits for welfare recipients be expanded to include the full range of dental care with the exception of elective services of a cosmetic nature.

The brief also urged that the range of beneficiaries be expanded to include such welfare categories as the blind, widows, disabled persons and those receiving old age assistance. At present basic dental services are provided for recipients of the Mothers' and Dependent Fathers' Allowances Act.

Ontario College Imposes Moratorium on Further Specialties

At its February 20-21 meeting, the Board of Directors of the Royal College of Dental Surgeons of Ontario decided that "specialty certification in endodontics and prosthodontics should be refused." The Board also imposed a moratorium on the recognition of further specialties.

Ontario NDP Promises Instant Free Child Dental Care

"A New Democratic government will move immediately to provide free dental treatment for all children," says a recent

resolution adopted by the Ontario New Democratic Party.

The resolution, part of the NDP's dental care plank for an upcoming provincial election, says there is an overall shortage of dentists in Ontario. Therefore "a New Democratic government will give high priority to creating new schools of dentistry and expanding the number of places in existing schools." The resolution also promises incentives to attract dentists to smaller communities and mobile clinics for remote areas in northern Ontario.

Eliminate Practice Limitation Rule for Saskatchewan Specialists

In Saskatchewan, orthodontists, oral surgeons and periodontists need no longer restrict their practice to the specialty in which they are registered. At its meeting April 7-9, the Council of the College of Dental Surgeons of Saskatchewan amended Article IX of the College by-laws, thereby removing the practice limitation requirement. Orthodontics, oral surgery and periodontics are the specialties recognized by the Saskatchewan College.

Quebec Professional Unions Prepare for Compulsory Medicare

A group of six Quebec professional unions representing various health professions has called for full integration of the health team in preparation for medicare.

The recommendation, according to the April 14 *Montreal Gazette*, is one of 60 which the group has submitted to Quebec's Castonguay Commission on Health (see also page 165, March Journal). The group's 186-page brief was drawn up jointly by associations representing physicians, dentists, opticians, optometrists and pharmacists.

A major suggestion in the report was the creation of a health insurance commission which would be responsible to the provincial health minister and would administer all health insurance legislation. The commission would consist of seven members: one hospital representa-

tive, two from the health professions, and four government representatives. The latter would in turn have subcommittees, each dealing with specialized aspects of health: hospitals, physicians, dentists, pharmacists, optometrists and opticians.

The report also recommended: compulsory water fluoridation at an annual cost not exceeding \$600,000; establishment of a dental school at Laval University; and the training of dental hygienists or dental auxiliaries to augment dentists' services.

Alberta Committee Wants Hygienists for Province-Wide Preventive Dentistry Program

A Special Legislative and Lay Committee on Preventive Health Services has called for a crash program to train sufficient dental hygienists ('auxiliaries') to provide adequate dental public health services throughout the province of Alberta. The committee's report, recently tabled in the provincial legislature, also recommends:

Dental facilities in schools at centralized points in regions that are deficient of dental services;

Hospital accommodation for dental surgery in areas that are deficient in such services;

Interim employment of a travelling dental team to serve regions where dental treatment is not yet freely available; and

Mobile clinics to serve areas which lack dental offices.

Salaries Instead of Medical Fees?

An official of the Cooperative Union of Canada has charged that fee for service as a method of paying for medical care is "as antiquated as hoop skirts and quill pens."

A. F. Laidlaw told a conference in Banff, Alberta, April 10 that consumers are "unalterably opposed to the typical medical society principle that the medical profession has the sole right to set unilaterally the fees for medical services." An adequate salary for doctors appeared

"to be a much more dignified thing than a hit-or-miss system of fees."

"To defend a system that allows physicians and surgeons to decide the level of fees is to cling to nineteenth century concepts that should have disappeared with my grandmother's method of treating pneumonia," he said.

Public Health

New Dental Survey System Described

Public health dentists heard the latest details about a proposed new system for conducting dental public health surveys at the Canadian and Ontario Public Health Association convention in Ottawa April 25. R. M. Grainger, chairman, Division of Dental Research at the University of Toronto, W. C. King, Nova Scotia director of dental services, and Maj. J. V. P. Chatwin, dental public health officer with the Department of National Defence, Ottawa, demonstrated the new survey technique and presented a paper entitled "A National and International Evaluation of Dental Health—a Report on Field Trials of a Simplified National System."

Fluoridation

Premier Bennett Supports Fluoridation

Premier W. A. C. Bennett of British Columbia has expressed his support of fluoridation according to a report in the *Victoria Times* of March 22. In his first public stand on the issue he told the legislature that he is a strong supporter of the issue and would recommend that fluoridation be placed before a committee of the legislature at the next session. Although the premier still supports the 60 per cent majority vote needed to pass fluoridation, he urged the Department of Education to give more education on the measure. He claimed that educational campaigns were the key to obtaining public acceptance of fluoridation and

pointed out that his home town of Kelowna had approved it by an 85 per cent margin after continued educational efforts.

Halifax Water Helps That 'No Cavity' Look

A 10 year survey has shown conclusive proof that fluoridation reduces tooth decay, says James McGaughey, director of dental services, Halifax Department of Health.

Dr. McGaughey told members of the city's health committee April 8 that caries-free children aged six to eight had increased from 35.9 per cent in 1956 to 59.7 per cent in 1966. Results of a group, aged 9-11, rose to 15.9 from 4.9 per cent. In 1956, only 1.1 per cent of students aged 12-14 were caries-free, while last year 4.9 per cent had no cavities.

Commenting on undesirable side effects expected from fluoridation, Dr. McGaughey said there had been "none whatsoever."

The survey also indicates a 96.2 per cent reduction in tooth loss in six to eight year old children. Decreases of 87.8 and 59.3 per cent tooth loss were found in the remaining groups.

Injunction Against Fluoridation in Charlottetown

A temporary injunction to restrain the fluoridation of Charlottetown's water supply until a trial court hears an action with regard to the February plebiscite was granted March 28 by Mr. Justice R. R. Bell in the Supreme Court. The plebiscite resulted in a vote of 1,139 in favour of fluoridation and 1,002 against.

The injunction was granted subject to the condition that the plaintiff, Cyril F. Campbell, proceed with his action with due speed according to the rules of court and without delay.

Friends and Foes Combine Forces

From the Pacific North-West comes this titillating item as recorded in the April

issue of the Washington State Dental Association's *WSDA News Letter*: "Proponents and opponents of fluoridation have joined forces in Richland to form the joint dental health committee of Benton and Franklin Counties."

Compulsory Fluoridation Law in Western Australia

All water supplies of the State of Western Australia will be fluoridated as the result of an act recently passed by the state parliament. The new law places the responsibility in the hands of the minister of health, according to advice sent to the CDA from West Perth, Western Australia.

This Australian state thus joins with Ireland and the state of Connecticut in approving mandatory fluoridation of water supplies.

Research

Research Council Issues Radiation Hazards Statement

The Council on Research, meeting in Toronto April 6-7, has reiterated the need for controlling radiation hazards in the use of dental x-ray apparatus. In its statement, the council outlined 16 positive measures—eight for the protection of patients and eight to reduce any hazard to operators of dental x-ray equipment. The council's statement stresses that "x-ray apparatus should only be operated by a person who has been trained in its correct use. It is only by this means that the patient can receive the advantage of x-rays . . . without risk of overexposure of the patient or operator." The full statement will be published in a forthcoming issue of the *Journal*.

In other actions, the council:

Recommended that a fifth Canadian Conference on Dental Research be held at London, Ontario, in October 1968;

Approved the general terms of a proposed research award to be offered by

the Canadian Dental Research Foundation effective 1968; and

Awarded four fellowships and two summer studentships worth \$11,525.

Rationale Given for Immediate Filling of Teeth

Immediate insertion of permanent restorations is preferable to the removal of decayed portions of teeth and installation of a temporary filling pending the formation of reparative dentine.

H. R. Stanley of the US National Institute of Dental Research told Montreal dentists February 15 that freshly cut dentinal tubules form a series of passageways to the sensitive pulp through which may pass irritating chemicals from the mouth, including those from temporary filling materials.

He said that histological studies have shown that reparative dentine seldom begins to form in less than 30 days. At most, a layer of only 0.1 mm. can be expected three months after the tooth is prepared.

He therefore recommended the application of cavity liners and sealers to provide protection to the pulp similar to that of reparative dentine, and immediate permanent restoration which would require in most cases only one visit to the dentist.

Dr. Stanley outlined his proposals in a paper on "The Biology of Dental Pulp" given at a meeting of the Mount Royal Dental Society.

Certain Food Combinations with Sugar Have Low Cariogenic Effect

Dog biscuits with large amounts of sugar added cause little tooth decay in rats—not nearly so much as that produced by cookies of the type commonly prepared for human consumption.

Addressing the 45th general meeting of the International Association for Dental Research in Washington, March 16-19, R. M. Stephan of the US National Institute of Dental Research said "Certain food combinations may be formulated which have relatively little cariogenic

property even though they contain substantial amounts of sugar."

To find the factors which give dog biscuits their caries-reducing effect, Dr. Stephan tested dog biscuits from which certain ingredients were omitted. When calcium phosphate was omitted from the sucrose-dog biscuit formula, the caries score increased to 9.2 (according to the Keyes method of caries scoring used in dental research). It rose to 11.4 with the omission of molasses and to 20.2 with meat omitted. Thus, meat appeared to exert the greatest protective effect.

UBC Researchers Awarded \$63,000

Research grants totalling about \$63,000 have been awarded to the following members of the Faculty of Dentistry, University of British Columbia:

T. J. Harrop, from the National Research Council of Canada, to study the ultra structure of human periodontic membrane;

D. G. Middaugh, from NRC, for a microradiographic study of incremental growth lines in cementum;

Leon Kraititz, from NRC, to study calcium transfer in salivary glands;

J. D. Spouge, from NRC, to study the development of the parotid gland with special reference to salivary tumours; and

H. K. Brown, from the Department of National Health and Welfare, for continuation of a study of dental public health.

Awards and Honours

J. B. Macdonald of Vancouver will be the 1968 president of the International Association for Dental Research. Dr. Macdonald relinquishes the post of president of the University of British Columbia in July of this year.

D. G. Creighton, chairman of the University of Toronto's history department, was granted an honorary doctorate by St. Francis Xavier University, Antigonish,



N. P. Truemner (second left) of Arthur, Ontario, a dentist for 50 years, was recently presented with a certificate honouring his long service. Ralph Michell, Kitchener, district representative for the Royal College of Dental Surgeons of Ontario, made the presentation. Looking on are Dr. Truemner's son, Paul (l.), a Waterloo dentist, and F. L. Roth, Kitchener, president of the Waterloo-Wellington Dental Society.

Nova Scotia, on May 15. Dr. Creighton is the author of an article to appear in a forthcoming issue of the Journal.

N. P. Truemner, a practitioner for the past 50 years in Arthur, Ontario, was recently awarded an honorary life membership by the Royal College of Dental Surgeons of Ontario.

Long time Edmonton practitioners **V. M. Lloyd** and **E. W. Wilkinson** received honorary life memberships in the Edmonton and District Dental Society April 11.

Murray Cornish, Toronto, has been elected international secretary of the Alpha Omega Dental Fraternity. Imme-

diately past president **Herbert Caplan**, Montreal, has been named a trustee.

Deaths

McMillan, Gerald Roy. 78. Leaside, Ontario. Royal College of Dental Surgeons of Ontario, 1916. 15-4-67. Associate member CDA. Survived by Pearl (wife), Mary (daughter) and Murray (son).

Stoltz, Clarence Edward. 70. Kitchener, Ontario. Royal College of Dental Surgeons of Ontario, 1924. 16-4-67. Associate member CDA. Survived by Florence (wife), Mrs. Robert L. Wilson (daughter) and Lloyd (brother).

Help make a good impression on the 30 million foreign visitors expected in Canada this summer. Support the 'Hospitality on the Highway Campaign' of the Canadian Highway Safety Council.

Canada

Ottawa rétablit les taux de l'allocation du coût en capital

Les taux de l'allocation du coût en capital sur le matériel dentaire, qui avaient été réduits de moitié par les règlements de l'impôt sur le revenu établis en mars 1966, ont été relevés à leur ancien niveau. Cette diminution temporaire, qui devait rester en vigueur jusqu'au 1er octobre 1967, a été suspendue par l'arrêté en Conseil PC1967-533, daté du 21 mars. Le numéro du 22 mars de la revue *Hansard* contient l'explication suivante, fournie par le ministre des Finances, M. Mitchell Sharp:

"Dans le budget de mars dernier, il a été annoncé qu'un règlement de la Loi de l'Impôt sur le revenu avait été établi, stipulant que les biens en capital de certaines classes, acquis dans la période comprise entre la date du budget et le 1er octobre de cette année, feraient l'objet d'allocations du coût en capital différé. Cette mesure avait pour but de limiter les immobilisations à un moment où elles atteignaient des niveaux excessifs.

Le présent arrêté en Conseil ramène du 1er octobre au 1er avril de cette année le terme de cette période. Par conséquent, les biens acquis après le 31 mars ne seront pas soumis à l'allocation du coût en capital différé que le règlement de l'année dernière imposait."

Le Fonds de l'enseignement accorde \$8,200 de bourses

Le Fonds canadien pour l'enseignement dentaire a accordé cinq nouvelles bourses totalisant \$6,200, pour la formation de professeurs d'art dentaire. Les bénéficiaires sont: Denis Carpentier, Montréal,

\$1,500; A. H. Ervin, Dartmouth, Nouvelle-Ecosse, \$1,000; J. P. Sapp, Halifax, \$1,200; Gordon Williams, Montréal, \$1,500; et M. D. Jones, Edmonton, \$1,000.

Le docteur Carpentier se préparera à l'enseignement de la pathologie buccale à l'université de l'Indiana. Le docteur Sapp suivra des cours semblables à l'université du Michigan. Les docteurs Ervin et Jones étudieront l'enseignement de la prothèse, le premier à l'université de l'Etat de l'Ohio, le second à l'université de l'Indiana. Le docteur Williams se préparera à l'enseignement de la périodontie à l'université de Boston.

Des bourses d'une valeur de \$2,000 ont été attribuées à deux autres étudiants. Il s'agit de K. H. Wright, de Montréal, boursier du FCED, qui étudie la périodontie à l'Université de Toronto, et J. G. Blackmer, de Saint-Jean, Nouveau-Brunswick, qui termine ses études d'hygiène dentaire publique à l'université du Michigan.

Le fonds de l'éducation a de nouveau accordé un don de \$500 à chaque Faculté de chirurgie dentaire canadienne. L'emploi de ces dons est laissé à la discrétion des doyens.

Le président du FCED, J. D. McLean, a observé que \$12,700 de bourses et de dons aux facultés dentaires avaient été distribués, et que le total prévu pour cette année était de \$20,000.

Le FCED a été institué en 1962 pour soutenir l'enseignement dentaire, venir en aide aux facultés dentaires, créer des bourses et des prêts aux étudiants et aider au recrutement d'étudiants pour les facultés dentaires canadiennes. Pour tous renseignements sur les bourses pour la formation de professeurs, écrire au secrétaire du FCED, 234 St. George Street, Toronto 5, Ontario.

Soixante-douze dentistes reçus à l'examen du Collège royal

Soixante-douze dentistes des diverses régions du Canada ont subi avec succès le premier examen du Collège royal des chirurgiens dentistes du Canada, tenu en mars dernier. Ils ont été reçus membres du Collège royal au cours d'une cérémonie qui s'est déroulée le 13 mai dans le Convocation Hall de l'Université de Toronto.

La liste des nouveaux membres paraît actuellement en page 333.

Chronique internationale

Conférences spéciales au Congrès mondial de Paris

Le Comité d'organisation du Congrès dentaire mondial de la FDI à Paris (7-13 juillet) annonce:

La réunion du sous-comité de l'histoire de l'art dentaire, le samedi 8 juillet à 2h00 de l'après-midi.

Une conférence sur les études épidémiologiques des maladies du périodonte, le dimanche 9 juillet à 9h00 du matin. Une deuxième conférence sur l'épidémiologie du cancer buccal et des lésions précancéreuses à 10h30 du matin le même jour. Une troisième conférence sur la conduite des études cliniques contrôlées, le dimanche 9 juillet à 3h00 de l'après-midi, avec la participation du docteur R. M. Grainger, de Toronto.

Le changement des attitudes envers la dentisterie fera l'objet d'une discussion libre le lundi 10 juillet à 9h00 du matin. Une autre discussion est prévue par ailleurs sur l'enseignement dentaire, le mercredi 12 juillet à 9h00 du matin.

Enfin, l'Association internationale pour la recherche dentaire présentera des démonstrations scientifiques le mercredi 12 juillet à 3h00 de l'après-midi.

Enquête sur les professions libérales en Grande-Bretagne

Le gouvernement britannique a commencé le 30 janvier une vaste enquête sur les pratiques restrictives au sein des professions libérales. L'enquête portera sur la

fixation des honoraires, les conditions requises pour entrer dans une profession, les limitations des services et autres pratiques. Elle touchera vraisemblablement les médecins, les dentistes, les hommes de loi, les comptables, les vétérinaires, les pharmaciens et les architectes.

Les cabinets intégrés au National Health Service seront exclus de l'enquête. On s'attend à ce que la Commission des monopoles, à qui l'enquête est confiée, examine les cas de dichotomie, ainsi que les cas des médecins spécialistes qui refusent de recevoir les malades qui ne leur sont pas adressés par un omnipraticien. Elle devra aussi se pencher sur les examens d'entrée dans les professions et voir quelles sont les conséquences du fait qu'ils soient préparés par des organismes professionnels plutôt que par le gouvernement.

Renforcement du programme dentaire de l'OMS

L'American Dental Association Research and Educational Foundation a reçu \$12,500, première tranche d'un programme de trois ans destiné à renforcer le programme dentaire de l'Organisation mondiale de la santé. Selon le docteur Harold Hillenbrand, secrétaire de l'ADA, ce projet permettra de consacrer \$75,000 au programme épidémiologique que doit entreprendre le service de l'hygiène dentaire de l'OMS. Après 1969, le programme restera à la charge de l'OMS seule.

Le programme a pour but de fournir la méthodologie des enquêtes dentaires employée par la profession pour la classification internationale des maladies, de réunir les données épidémiologiques connues sur les maladies dentaires et buccales, d'instituer des cours internationaux d'épidémiologie dentaire, enfin de rassembler et d'analyser les statistiques sur la morbidité dentaire.

Le Dr Chaves quitte l'OMS

Le docteur Mario Chaves, chef du Service de l'hygiène dentaire de l'Organisation mondiale de la santé, à Genève, a remis sa démission à la fin du mois de mars pour des raisons personnelles. Le docteur

Chaves est retourné au Brésil, d'où il est originaire, et où il s'occupera du programme d'hygiène dentaire publique de l'Ecole nationale d'hygiène publique de Rio de Janeiro.

Avant d'entrer en fonction à Genève en août 1963, le docteur Chaves était conseiller dentaire régional de l'OMS pour les Amériques.

Record d'inscriptions dans les facultés dentaires américaines

Un nombre record d'étudiants sont inscrits cette année dans les facultés dentaires américaines, malgré le fait que la plupart d'entre eux doivent maintenant accomplir huit années d'études prédentaires et dentaires.

Le docteur R. L. Ireland, de Lincoln, Nebraska, président de l'American Association of Dental Schools déclare que le nombre d'étudiants de première année inscrits dans les 49 facultés dentaires américaines atteint cette année 3,942, soit une augmentation de 3.7 pour cent sur l'année précédente. Le total des inscriptions a augmenté de 3 pour cent. On compte 14,421 étudiants dans les quatre années d'études dentaires.

Le docteur Ireland souligne la tendance à demander quatre années d'études préalables. Cette année, 62 pour cent des étudiants de première année ont accompli quatre ans d'études ou plus avant d'entrer dans une faculté dentaire. Il y a dix ans, la proportion n'était que de 48 pour cent.

L'Illinois propose la reconnaissance réciproque du droit de pratique

Le State Board of Dental Examiners et le Department of Registration and Education de l'Illinois ont proposé à tous les organismes dentaires de réglementation professionnelle des Etats-Unis la reconnaissance réciproque du droit de pratique. L'Illinois reconnaîtra donc les licences de tout autre état qui lui accordera une reconnaissance réciproque.

Une éditorial du *Journal of the American Dental Association* déclare que cette décision constitue le premier grand effort de la part d'un bureau d'examen dentaires pour faciliter le mouvement des

dentistes d'un état à l'autre. Elle reflète une juste inquiétude à propos de la répartition médiocre des effectifs dentaires qu'imposent les systèmes actuels d'autorisations restreintes à chaque état. C'est un exemple réjouissant.

Fermeture de la clinique Guggenheim à New York

La Murry and Leonie Guggenheim Dental Clinic de New York va fermer ses portes après 36 années de service communautaire. Les autorités estiment que la législation sur la sécurité sociale des Etats-Unis offre maintenant des soins dentaires qui rendent la clinique inutile.

La clinique Guggenheim, l'une des plus importantes institutions philanthropiques pour la santé dentaire, a traité 35,000 à 40,000 enfants par an, au cours des dernières années.

Fondée par les regrettés Murry et Leonie Guggenheim, la clinique compte 83 fauteuils dentaires et son personnel se compose de 79 internes travaillant sous la direction de huit dentistes traitants et de 22 superviseurs.

Cours d'implantologie du 6 au 8 juillet à Paris

Le Centre international de recherches implantaires, de Paris, offre un cours d'implantologie de trois jours, du 6 au 8 juillet. Le cours aura lieu à l'Hôpital Lariboisière, et traitera des techniques subpériostale et endo-osseuse, y compris les implants spiralés, les implants à crête mince, les implants aiguilles et l'implantation transfixiant. Le montant de l'inscription est fixé à \$200. Le nombre des participants étant limité, il est recommandé de s'inscrire sans tarder auprès du Dr Cherchève, 5 avenue de l'Opéra, Paris 1er, France, ou auprès du Dr Linkow, 30 Central Park South, New York, N.Y. 10019, USA.

Réunion de dentisterie psychosomatique au Québec

L'American Society of Psychosomatic Dentistry and Medicine tiendra sa 18ème

réunion annuelle conjointement avec la Société dentaire et médicale d'hypnose clinique du Québec, au Mont Gabriel Lodge, à Mont Gabriel, Québec, du 10 au 14 septembre. Les frais d'inscription sont de \$15.

Pour tous renseignements, écrire à l'ASPDM, 964 Delaware Avenue, Buffalo, NY 14209, USA.

Congrès à la Jamaïque en janvier '68

Les dentistes canadiens sont invités à assister au 4ème congrès national de la Jamaica Dental Association. Le congrès aura lieu à l'hôtel Sheraton-Kingston, à Kingston, Jamaïque, du 28 janvier au 2 février 1968. Pour tous renseignements, écrire à C. W. Meeks, Chairman, Convention Committee, Jamaica Dental Association, P.O. Box 19, Kingston 5, Jamaica, WI.

Facultés dentaires canadiennes

Projet de faculté dentaire à l'Université Laval

Une nouvelle école dentaire devrait être fondée à l'Université Laval, à Québec. Elle devrait former ses premiers dentistes aux environs de 1975. Telle est la principale recommandation d'un rapport préparé pour L'Association des Recteurs et des Directeurs d'université du Québec. Le rapport contient un plan détaillé qui prévoit dans une première étape le recrutement et la formation du personnel de la nouvelle école. Au cours de cette période, les facultés des Universités McGill et de Montréal entreprendront et achèveront leurs propres programmes d'agrandissement, ce qui permettrait d'ouvrir l'école de Québec à temps pour la date prévue de 1975.

Les auteurs du rapport sont: les docteurs Gérard Girard, secrétaire de la Faculté de médecine de l'Université Laval, J.-P. Lussier, doyen de la Faculté de chirurgie dentaire de l'Université de Montréal, James McCutcheon, doyen de la Faculté de chirurgie dentaire de l'Université McGill, et Gustave Ratté, repré-

sentant du Collège des chirurgiens dentistes de la province de Québec.

Economie

Saskatchewan: les subventions aux dentistes sont efficaces

Les mesures prises par le gouvernement provincial pour remédier au manque de dentistes en Saskatchewan donnent de bons résultats, a déclaré le Ministre de la Santé, G. B. Grant.

L'année dernière, près de \$200,000 ont été consacrés de diverses façons à encourager les dentistes à s'établir en Saskatchewan. Monsieur Grant a fait remarquer que c'était là une franche augmentation par rapport aux années précédentes. En 1959, \$4,000 seulement avaient été consacrés à l'encouragement des dentistes. Les crédits sont passés à \$43,800 en 1964 et n'ont pas cessé d'augmenter depuis.

Une partie du programme actuel prévoit des subventions de \$5,000 aux dentistes qui s'établissent dans les régions de la province où le manque de dentistes est critique. Dix de ces subventions ont été accordées, permettant l'installation de dentistes dans les localités suivantes: Gravelbourg, Humboldt, Moosomin, Weyburn, Lloydminster, North Battleford, Melfort (deux dentistes), Assiniboia et Rosetown.

La limitation à une spécialité n'est plus nécessaire en Saskatchewan

Les orthodontistes, les chirurgiens buccaux et les périodontistes de Saskatchewan ne sont plus tenus de restreindre leur pratique à la spécialité pour laquelle ils sont enregistrés. Lors de sa réunion du 7 au 9 avril, le Conseil du Collège des chirurgiens dentistes de Saskatchewan a amendé l'article IX des règlements du Collège en supprimant la limitation de pratique. Les spécialités reconnues par le Collège de la Saskatchewan sont l'orthodontie, la chirurgie buccale et la périodontie.

Trouvez une solution, ou sinon . . .

On a demandé aux dentistes du Manitoba d'apporter leur propre solution au problème des mécaniciens dentaires, s'ils ne veulent pas qu'une loi le résolve d'une façon qu'ils pourraient trouver inacceptable.

M. Saul Cherniak (NDP-St. John) a déclaré le 21 janvier aux membres de l'Association dentaire du Manitoba qu'ils ne peuvent plus ignorer les mécaniciens et laisser au parlement le soin de les exclure de la province. Si le problème était résolu par une loi, a-t-il dit, il craignait que ce soit aux dépens des normes que les dentistes essaient de maintenir.

En attendant, un rapport qui déclare que les dentistes devraient conserver un contrôle complet et l'entière responsabilité de la santé buccale du public demeure au parlement du Manitoba, parce que le gouvernement provincial ne l'a jamais officiellement publié. Ce rapport a été élaboré en deux ans par un comité parlementaire spécial et a été déposé le 5 avril de l'année dernière par le ministre provincial de la Santé, C. H. Whitney. Le *Journal de l'Association dentaire canadienne* en a donné un compte rendu dans son numéro de juillet 1966 aux pages 438-9.

L'assurance dentaire couvre 3.1 millions d'Américains

D'après le US Public Health Service, 3,089,900 Américains étaient couverts par une assurance dentaire à la fin de 1966. Les sociétés d'assurance dentaire enregistrent la plus forte augmentation (126 pour cent) avec 575,000 nouveaux adhérents. Les sociétés couvrent maintenant 1,033,100 personnes. Les compagnies d'assurance commerciale en couvrent 853,900, les régimes collectifs 765,900, et les divers autres systèmes 437,000.

Le nombre de régimes d'assurance offerts a considérablement augmenté. En 1960, on comptait 155 régimes, et il y en avait 632 à la fin de 1966.

Outre les 3.1 millions de personnes qui sont assurées par des régimes privés, quelque 10.8 millions d'Américains de 21 états ont actuellement droit aux indem-

nités dentaires en vertu du Titre XIX du programme américain de sécurité sociale. De même, quelque 533,000 enfants sont couverts par le Head Start Program.

Fluoration

Le public boude les comprimés de fluor

Dans les Prairies, les comprimés de fluor n'ont pas été accueillis avec enthousiasme, sauf dans des villes comme Lethbridge et Calgary, où la fluoration a été rejetée par les électeurs.

Selon M. H. E. Robertson, directeur du laboratoire provincial de la Saskatchewan, la distribution de comprimés de fluor sera suspendue au niveau municipal, parce que trop peu de gens en réclament. Cependant, il sera encore possible d'obtenir des comprimés du ministère de la Santé de la Saskatchewan.

En Alberta, le docteur C. L. Pearson, directeur adjoint des services de santé locaux, déclare que la demande de fluor en comprimés et en solution a été très inférieure à celle de la Saskatchewan. Le docteur Pearson remarque que le public est indifférent et que la plupart des gens préfèrent la fluoration des services d'eau. L'idée de prendre un comprimé par jour pendant des années ne peut guère séduire les gens.

En Alberta, un stock complet de trois millions de comprimés et de 20,000 flacons de une once de fluor liquide a été distribué, d'après A. T. Salter, directeur des services dentaires provinciaux. Cependant, la demande est loin d'épuiser les stocks disponibles dans les unités de soins et auprès des infirmières de l'hygiène publique municipale.

L'eau de Halifax diminue le nombre de caries

Le docteur James McGaughey, directeur des services dentaires du département de l'hygiène de Halifax, a déclaré qu'une étude de 10 ans apporte la preuve décisive que la fluoration réduit la carie dentaire.

Le docteur McGaughey a rapporté le 8

avril au comité d'hygiène de la ville que la proportion d'enfants sans caries, âgés de six à huit ans, était passée, de 35.9 pour cent en 1956 à 59.7 pour cent en 1966. Dans le groupe des 9 à 11 ans, le chiffre est passé de 4.9 pour cent à 15.9 pour cent. En 1956, 1.1 pour cent seulement des écoliers de 12 à 14 ans n'avaient pas de caries, alors que ce chiffre était de 4.9 pour cent l'année dernière.

Quant aux effets indésirables de la fluoruration, le docteur McGaughey a déclaré qu'il n'y en avait eu "absolument aucun."

L'enquête fait état d'une diminution de 96.2 pour cent des pertes de dents chez les enfants de six à huit ans. Dans les autres groupes, les pertes de dents ont diminué de 87.8 et 59.3 pour cent.

Nouveau référendum à Hamilton en '68

Les électeurs de Hamilton devront décider en décembre 1968 s'ils désirent que leur service d'eau demeure fluoré—24 mois environ après qu'ils se soient prononcés en faveur de la fluoruration, en décembre dernier. Cette ville ontarienne est en train d'installer l'équipement nécessaire au coût de \$35,000, et les autorités prévoient que l'eau de Hamilton sera fluorée cet été.

La loi de l'Ontario oblige les municipalités à tenir un référendum lorsque 10 pour cent des électeurs le demandent. Le nouveau vote est rendu nécessaire par une pétition signée par plus de 22,000 habitants de la ville.

Recherches

Déclaration du Conseil de la recherche sur les dangers des radiations

Le Conseil de la recherche, réuni les 6 et 7 avril à Toronto, souligne une nouvelle fois la nécessité de prévenir les dangers liés à l'usage des appareils de radiographie dentaire. La déclaration du conseil fait état de 16 mesures à prendre, dont huit concernent la protection des patients et huit autres la protection des personnes qui utilisent les appareils. Le conseil souligne que "seules les personnes

qui ont reçu l'entraînement nécessaire devraient faire fonctionner ces appareils. C'est là le seul moyen d'assurer au patient le bénéfice des radiographies . . . sans danger de surexposition pour le patient ou l'opérateur." La déclaration complète sera publiée dans un prochain numéro du Journal.

Par ailleurs, le conseil a

Recommandé que la cinquième Conférence canadienne sur la recherche dentaire soit tenue à London, Ontario, en octobre 1968;

Approuvé un projet de bourse de recherche qui serait attribuée par le Fonds canadien pour la recherche dentaire à partir de 1968;

Accordé quatre bourses de recherche et deux bourses d'été totalisant \$11,525.

Des dents de porcelaine soudées à la résine des prothèses

Des dents de porcelaine, faites de silicate fondu peuvent maintenant être soudées à des bases de résine acrylique cuite ou autopolymérisantes, au moyen d'un produit spécial (le silane) qui est en vente dans le commerce. Cette découverte est due à trois chercheurs de l'American Dental Association travaillant avec l'appui du US National Institute of Dental Research et d'autres services dentaires gouvernementaux.

Jusqu'ici, l'adhérence des dents à la base de plastique était faible ou nulle. Il fallait par conséquent fixer les dents à la base de plastique au moyen d'épingles d'or. Le nouveau procédé devrait permettre une réduction appréciable du prix de fabrication.

Comme la porcelaine se dilate ou se contracte beaucoup moins que le plastique suivant les variations de température, une fissure se forme entre la dent et la base lorsqu'une prothèse qui est à la température de la pièce est placée dans la bouche du patient. Les débris alimentaires et les bactéries pénètrent dans cette fissure, y fermentent et causent une décoloration et une odeur. Par contre, les dents soudées au silane adhèrent si fermement à la base que les écarts de température ne provoquent aucune fissure. La solidité de la prothèse est considérablement augmentée.

Faible effet cariogène d'aliments contenant du sucre

Des biscuits pour chien contenant de fortes proportions de sucre causent peu de carie chez les rats — beaucoup moins que les biscuits destinés à la consommation courante des humains.

Lors de la 45ème réunion générale de l'Association internationale pour la recherche dentaire (16-19 mars), le docteur R. M. Stephan, du US National Institute of Dental Research a déclaré que certaines combinaisons d'aliments peuvent avoir une action cariogène assez faible même si elles contiennent une quantité considérable de sucre.

Le docteur Stephan a recherché les facteurs qui diminuent l'action cariogène en éliminant certains ingrédients des biscuits pour chien. Lorsque le phosphate de calcium fut supprimé des biscuits à base de sucrose, le chiffre des caries s'éleva à 9.2 (selon la méthode de cotation de Keyes utilisée en recherche dentaire). Il s'éleva à 11.4 en supprimant la mélasse et à 20.2 en supprimant la viande. C'est donc la viande qui manifeste le meilleur effet protecteur.

Une justification de l'obturation immédiate

Mieux vaut mettre en place dès le début des restaurations permanentes que d'ôter les parties atteintes des dents et de poser une obturation temporaire en attendant la déposition de dentine secondaire.

Le docteur H. R. Stanley, du US National Institute of Dental Research, a déclaré, au cours d'une conférence à Montréal le 15 février, que les canalicules dentinaires, une fois sectionnés, mettent la pulpe sensible en contact avec les agents chimiques irritants qui proviennent de la bouche et même des matériaux d'obturation temporaire.

Des études histologiques ont montré que la dentine secondaire commence rarement à se former avant 30 jours. Trois mois après que la dent a été préparée, la couche formée n'est que de 0.1 mm.

Il recommande par conséquent l'application de vernis protecteurs pour assurer à la pulpe une protection semblable à

celle de la dentine secondaire, et une restauration permanente d'emblée, qui le plus souvent ne demande qu'une visite chez le dentiste.

Le docteur Stanley développe ses arguments dans un article intitulé "The Biology of Dental Pulp", qu'il a présenté à une réunion de la Mount Royal Dental Society.

J. B. Macdonald est nommé président-élu de l'IADR

Le docteur J. B. Macdonald, de Vancouver, qui quitte cette année ses fonctions de recteur de l'Université de Colombie britannique, a été nommé président-élu de l'International Association for Dental Research, lors de sa 45ème assemblée générale tenue à Washington, du 16 au 19 mars.

Le nombre des participants dépassait 1,800, chiffre qui n'avait jamais été atteint. Près de 600 articles sur les derniers progrès de la recherche dentaire furent présentés lors de la réunion.

Bourses à la faculté de Toronto

Le Conseil national de la recherche du Canada a décerné des subventions d'un montant de \$84,702 à neuf membres de la faculté dentaire de Toronto pour l'année 1967-68. Ces subventions les aideront à poursuivre des recherches qui vont de relation organique-inorganique dans le développement de l'émail à la direction de la croissance mandibulaire chez les enfants.

Les bénéficiaires sont: R. C. Burgess \$10,822, M. Goldner \$16,000, R. M. Grainger \$10,540, R. Hazelton \$1,450, M. C. Johnston \$11,450, M. A. Listgarten \$14,700, A. T. Storey \$9,950, C. D. Torneck \$4,490, et D. G. Woodside \$5,300.

Les docteurs Burgess et M. Goldner ont également reçu une bourse de recherche dentaire.

Des bourses ont été attribuées aux étudiants suivants: E. I. Fedun, W. J. Fleming, R. P. Hamilton, J. Huang, R. A. Isaac, A. Kamin, J. Krawec, Mlle. J. Sajner, B. Shapero, W. Wilson et A. Weisblatt.

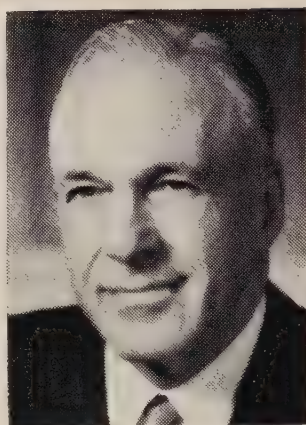
Des subventions en hygiène publique ont été accordées à R. G. Ellis \$30,540, D. W. Lewis \$2,730, et G. A. Zarb \$1,650.

Hygiène publique

Succès des cartes d'anniversaire en Colombie britannique

En Colombie britannique, un programme de cartes d'anniversaire pour les enfants de trois ans a donné des résultats qui dépassent de loin les prévisions. Selon Frank McCombie, directeur dentaire de la province, 60 à 70 pour cent des enfants de trois ans ont vu le dentiste de famille, dans quatre des sept localités où le programme avait été inauguré. Les enfants reçurent des examens cliniques ou radiologiques, selon le jugement du dentiste. La plupart reçurent également une application topique de fluor. Le docteur McCombie explique de deux façons la réussite du programme: la qualité et la présentation des cartes de vœux, secondées par un rappel téléphonique. Les cartes d'anniversaire pour les enfants de trois ans, a-t-il déclaré, remplaceront peut-être les programmes dentaires préventifs existant dans les localités de Colombie britannique où des dentistes sont établis.

Palmarès



M. E. Bower

Monsieur **M. E. Bower**, président de la Dental Company of Canada a été nommé membre honoraire de la section canadienne du Collège international des chirurgiens dentistes, lors de sa réunion du 13 mai à Toronto. Cet honneur lui a été décerné en reconnaissance des services manifestes et méritoires que les fabricants de fournitures rendent à la profession dentaire. Ancien administrateur et vice-président du Fonds canadien pour l'enseignement dentaire, monsieur Bower a été intimement lié au développement du fonds au cours de ses premières années, en qualité de représentant de l'industrie des fournitures dentaires. Membre du Comité de l'information du public du FCED, il demeure au service de l'enseignement dentaire.

Les dentistes ont le devoir de convaincre leurs patients que la fluoruration réduit des deux tiers la carie dentaire et cela d'une façon sûre et économique.

Compendium of Pharmaceuticals and Specialties (Canada) 1967

F. Norman Hughes and G. N. Rotenberg. Ed. 2. Toronto, Canadian Pharmaceutical Association Inc., 1967. 820 p. \$10.00 (reg. price), \$5.00 (dentists)

This book contains factual information on virtually every marketed Canadian prescription drug and specialty product arranged in alphabetical sequence. The information covers some 10,000 products available in a multitude of dosage forms, strengths and package quantities. In addition to the physical and quantitative specifications of its formula, each drug preparation is concisely described under such headings as: indications, administration, contra-indications, side reactions, precautions and supply. A subtitle for each specialty product identifies the non-proprietary name of the active ingredient. More extensive monographs are presented for a number of drugs to supplement the mono-

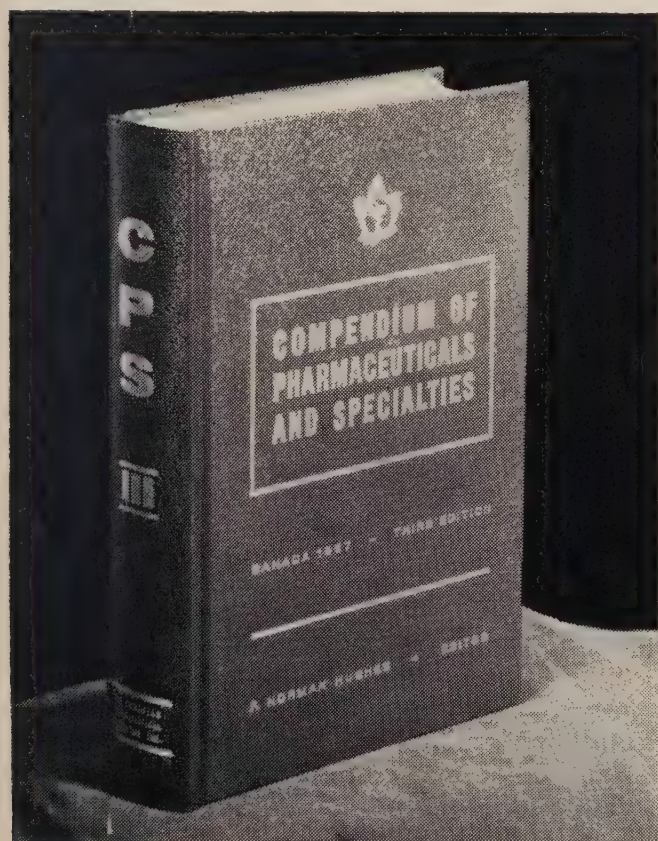
graphs of the specialties which contain such drugs. A therapeutic category is shown for each pharmaceutical or specialty.

Other useful sections, on coloured pages, include a therapeutic index which lists manufacturers' products under therapeutic, pharmacological or chemical headings; a non-proprietary names index which links 'generic' names with chemical names and brands (and their manufacturers); and a trade names index showing for each a non-proprietary name.

Additionally, there is a list of poison control centres in Canada; a Latin prescription terminology and compendium abbreviations; weights and measures and conversion tables; information on calculation of drug dosage in children; extracts from federal drug legislation; and an outline of the adverse drug reaction reporting program of the Department of National Health and Welfare.

The Canadian Pharmaceutical Association intends to publish annually completely revised editions of the *Compendium*. This book is most useful for editors of scientific dental journals who will find in it a reliable reference for both old and new drug preparations. It can also be recommended for acquisition by dental school libraries.

F. H. Compton



Clinical Orthodontics

C. H. Tweed. St. Louis, C. V. Mosby Company, 1966. 946 p. (2 volumes) Illus. \$59.50

This text, which is presented in two volumes, is a long awaited addition to the orthodontic literature. It is written by one of the world's leading orthodontic clinicians. Dr. Tweed has presented a well-written and well-illustrated treatise on his philosophy and treatment procedures using the edgewise orthodontic appliance. This treatment philosophy has resulted from years of personal experience and the experience of large numbers of other orthodontists who have familiarized themselves with it.

Volume 1, part one, discusses the diagnosis and treatment planning of cases using a simple cephalometric analysis. This analysis was devised after years of careful study of faces and treated orthodontic cases. The 'diagnostic triangle' so derived forms the

basis for the ensuing treatment procedures. The analysis is amply illustrated by a series of case histories. A step-by-step description of arch formation for the Tweed edgewise technique follows in part two. The importance of this phase of orthodontic treatment is stressed and all the basic principles are well illustrated using a Typodont. This section of the book is excellent. A series of case histories is then given to reinforce the technique procedures.

Volume 2 concerns itself with the philosophy of treatment and the specific treatment of certain types of malocclusion. Mixed dentition treatment is discussed, problems associated with orthodontic practice are mentioned, and a large section is devoted to the treatment of permanent dentition cases, including Class I, Class II, Class III and bimaxillary protrusion. A clearly defined step-by-step approach is made to the treatment of each specific malocclusion. More case histories are presented at the conclusion of this section.

This well written text is intended for the orthodontic specialist, either practising or in training. Unfortunately, the large number of case histories detracts from the overall impact of an otherwise excellent book.

J. F. Cleall

An Introduction to Periodontia

H. M. Goldman, Saul Schluger, D. W. Cohen, B. S. Chaikin and Lewis Fox. Ed. 3. St. Louis, C. V. Mosby Company, 1966. 383 p. Illus. \$9.85

In the preface to the third edition, the authors again state that this book "is intended for the student and general practitioner as a basic text." I cannot agree. Like the first edition, this one is a very good basic text for the general practitioner, but it is unsuitable for the student except as supplementary reading.

Two new chapters on epidemiology and prevention of periodontic manifestations have been included. The former is principally concerned with the methodology and difficulties of the subject; the latter appeals to the dentist to help prevent periodontic diseases in general practice.

Newer concepts of anatomy, physiology and histology are incorporated. For example, the role of the col, gingival fluid and changes in the epithelial attachment are discussed. In the chapter on aetiology, little mention is made of the role of bacteria — although speakers at the recent World Conference on Periodontic Research particularly stressed this subject. On the other hand, the part played by emotional factors in the aetiology of acute necrotizing ulcerative gingivitis receives far more emphasis in this edition than in the first; this is in line with changing opinions in periodontic teaching.

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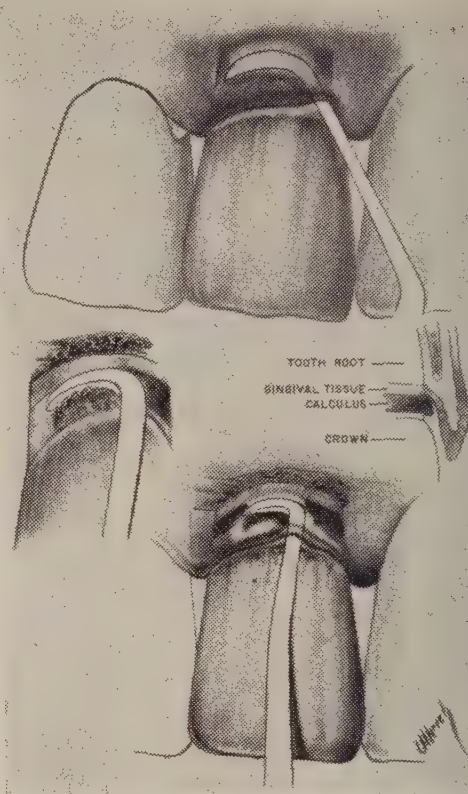


Fig. 108. Drawing of the pull stroke in the scaling procedure. Note the displacement of the gingival tissue in this operation. The instrument is placed apically to the calculus deposit and pulled incisally.

The chapters on examination, diagnosis, radiographic interpretation, treatment planning and prognosis, and initial preparation are very good. I was particularly impressed with the section on treatment planning — an extremely difficult subject to present.

The chapter on therapy of the marginal lesion gives many approaches to treatment. The sections on curettage and gingivectomy are well covered, but those on flap surgery and mucogingival surgery are too brief to more than whet the appetite of the reader. The authors explain this, however, in the preface when they state that "a brief survey of more complex material has been included in the hope that it will serve to stimulate the reader to further study and development." This remark applies equally to the chapters on tooth movement, bruxism splints and Holly retainers.

The chapter on lesions of the attachment apparatus admirably stresses when and when not to adjust the occlusion. The major emphasis is on occlusal reshaping and the adjustment of centric relation. In contrast, the chapter on acute lesions is incomplete and could have been considerably expanded.

The final chapter on prevention should be carefully read and digested by everyone engaged in general dentistry.

As a 'basic text,' this book is a worthwhile addition to the library of the general practitioner and periodontist, but it is unsatisfactory for the undergraduate student except for supplementary reading.

R. F. Harvey

Current Therapy in Dentistry

H. M. Goldman, S. P. Forrest, D. L. Byrd and R. E. McDonald. Volume II. St. Louis, C. V. Mosby Company, 1966. 848 p. Illus. \$19.50

This text follows by two years the first volume. The current edition has been updated and expanded by five chapters and nearly one hundred pages. The original format of abundant high quality illustrations and a minimum of statistical tables has been retained.

Division of the subject matter into sections on oral medicine, restorative dentistry, oral surgery, paedodontics and orthodontics allows a current evaluation of all disciplines in dentistry. Clear-cut division of subject material in each chapter makes it easy to select and review the area in which the reader's interest lies.

Each of the 37 chapters is by a different author; these authors collectively represent a wide cross-section of the dental schools of North America. Though criticism is sometimes voiced over so-called 'Ivory Tower' authorship, these are the people who can uniquely apply current research to the treatment of the dental patient. This is

evidenced in most of the sections which describe not only solutions for the commonplace, but also the challenging situations which arise in general practice.

This is an excellent text for anyone who wants a review of the widest scope in one text. It is of particular interest to dentists who have practised for some time and who pursue a program of continuing education, or who are preparing for national or other examinations.

D. C. Deedrick

Odonto-stomatologie: syndromes à noms propres

P. Moortgat. Paris, Julien Prélat, Editeur, 1966. 46 p. Cartonné 10F

Ce petit bouquin genre aide-mémoire est rédigé sous un format très pratique permettant à l'étudiant et au praticien de trouver facilement le nom d'un syndrome ainsi que les principaux signes et symptômes qui le composent.

Environ une centaine de syndromes à noms propres sont décrits par ordre alphabétique. Le travail de Moortgat aidera beaucoup de lecteurs à se familiariser avec certains termes qui, le plus souvent, portent à confusion à cause de leur appellation.

Les dernières pages de l'ouvrage consistent en un rappel de certaines constantes biologiques toujours utiles à conserver à portée de la main.

Jean Fontaine

présentation des manuscrits

Ce résumé des instructions d'usage a été établi à l'intention des personnes qui désirent préparer des manuscrits en vue de leur publication dans le *Journal de l'Association dentaire canadienne*.

Manuscrits: Les manuscrits soumis au rédacteur doivent être accompagnés d'une lettre d'envoi demandant leur publication dans le Journal. On doit envoyer deux exemplaires — l'original et une copie au papier carbone — le tout (texte, citations, tableaux, légendes, bibliographie, etc.)

dactylographié avec double interligne, sur un seul côté de la feuille (8½ x 11 pouces), avec de grandes marges sur les quatre bords. L'auteur devrait toujours conserver une copie au papier carbone de tout manuscrit proposé. Tout article doit être accompagné d'un résumé de son contenu.

Les articles originaux seront examinés et acceptés à la condition qu'ils ne soient soumis qu'au Journal seul et qu'ils ne puissent pas être reproduits sans le consentement du rédacteur ni celui de l'auteur.

Le rédacteur se réserve le droit de disposer l'article dans l'espace disponible et d'apporter au manuscrit les modifications éditoriales usuelles et nécessaires, qui comprennent les corrections grammaticales et orthographiques, l'éclaircissement des passages obscurs et l'adaptation au style du Journal. Aucun changement important ne sera effectué sans consultation préalable de l'auteur. L'auteur principal recevra soit le manuscrit modifié, soit les épreuves pour les contrôler avant leur publication.

Titres: Ils doivent donner une bonne idée de l'article et rester aussi brefs que possible. Les longs titres détournent le lecteur, présentent des problèmes de typographie et de disposition et rendent difficile le classement en bibliothèque.

Références: Les références à des œuvres publiées devraient se limiter au minimum nécessaire pour guider le lecteur qui désire étudier plus profondément le sujet. L'auteur ne doit pas citer un article qu'il n'a jamais lu. Le nombre de références ne doit pas dépasser 25, sauf si l'article constitue une synthèse. Les références doivent être numérotées dans le texte et renvoyer à une bibliographie séparée, à la fin de l'article.

Pour les références aux revues, donner le nom de l'auteur, le titre de l'article, le nom de la revue, le numéro du volume, la première page de l'article et l'année de publication:

1. Tanner, D. M. Le traitement d'urgence des lésions maxillo-faciales. *J. Ass. Dent. Canad.* 33:31, 1967.

Pour les références aux livres, indiquer le nom de l'auteur, le titre du livre, la ville et le nom de l'éditeur, l'année de publication:

2. Nally, J. N. Matériaux et alliages dentaires, Paris. Julien Prélat, 1964.

Illustrations: Les illustrations au trait et en similigravure doivent être de bonne qualité pour permettre une reproduction satisfaisante.

Photographies — Les photographies demandent un certain soin. On ne doit pas les plier, ni les agraffer; ne pas effectuer de montage ni couper les bords. Elles doivent être nettes, sur papier glacé, en noir

et blanc et de préférence ne pas dépasser 8 x 10 pouces. Les photos en couleur ne peuvent être publiées qu'aux frais de l'auteur. Le grossissement des microphotographies doit toujours être indiqué. Les photographies ne doivent porter aucune mention écrite ou dactylographiée. Au verso de chaque photo, inscrire légèrement au crayon, le nom de l'auteur, le numéro de figure et indiquer le haut. Si une figure contient deux photos ou plus, ne pas effectuer de montage; inscrire légèrement au crayon, au verso de chaque photo, le numéro de figure et la lettre d'ordre (Figure 1a, etc.) en indiquant aussi le haut. Les patients ne doivent pas être reconnaissables à moins qu'ils n'aient fourni une autorisation écrite de publication.

Dessins—Les schémas, graphiques, courbes et diagrammes ainsi que le lettrage doivent être tracés à l'encre de chine. Le lettrage doit être assez grand pour demeurer lisible après réduction du dessin à la largeur d'une colonne (dessins simples et petits) ou d'une page (dessins plus complexes et plus grands).

Légendes—Les légendes doivent être séparées des illustrations et du texte, et groupées sur une feuille distincte.

Tableaux: Chaque tableau doit être dactylographié sur une feuille séparée, numéroté par ordre d'insertion et adaptable à la largeur d'une colonne ou d'une page. Les notes au bas du tableau et son titre doivent figurer sur la même page que le tableau. Ne pas tracer les lignes verticales du tableau.

Autorisations et renonciations: Elles devraient accompagner le manuscrit soumis pour publication. L'autorisation de l'auteur et de l'éditeur sont nécessaires pour utiliser directement tout document (textes, photographies, dessins) protégé par droits d'auteurs. Il est d'usage de citer jusqu'à cent mots de prose sans autorisation, à condition que le passage cité ne constitue pas l'essentiel de l'œuvre. Des renonciations doivent aussi être obtenues pour la publication de photographies de personnes, à moins que les visages ne soient masqués pour éviter l'identification. On peut demander au rédacteur des formules de renonciation.



editorials • page éditoriale

The continuing which yieldeth the true glory

The record attendance at the CDA-ODA centennial convention would have stirred the architects of the nation's first dental organization. Bogart, Day, Callender, Chittenden, Lalonde, O'Donnell, Relyea, Scott, Snider and Wood would have been thrilled by the spectacle of 2,148 Canadian dentists who came to Toronto May 13-17 to commemorate the founding of the Ontario Dental Association 100 years ago. The intervening years seemed to melt away as the founding fathers of the ODA gazed from their mural on the east wall of the Royal York Hotel's enormous Canadian Room upon the assembled convention delegates. The very spirit of Barnabus Day presided over the meeting. One can almost sense the fulfilment of a dream which he expressed so long ago in these words: "... While we felt we had achieved much, and had just cause for congratulation, we also felt that something more was yet to be done ... and which we hoped should ultimately extend its benefits to the whole of the Dominion." It would have given Day and his colleagues great satisfaction to witness the results that flowed from their struggles. We assure them true glory by continuing the work they launched 100 years ago.

Sydney Wood Bradley 1879-1967

Syd Bradley died on Monday, February 20, after a lingering illness. Unassuming by nature, he was a man of character and solid principle. To this man I owe a debt of gratitude which can never be repaid. I may now divulge what I was forbidden to disclose in the past and I therefore seize the opportunity to record my sentiments in this personal manner.

I met Syd Bradley early in my professional life and was quickly impressed by the man. Apart from the devotion he always displayed toward his own family, his profession was his first love. He soon discovered that I had lost my father as an infant and began to take a personal interest in me. His attitude was that of a foster father; certainly our conversations over the years always reflected this pattern.

No dentist influenced me more to give up practice and take up executive duties. Yet, characteristically, he never once asked me to do so. After my own decision was made he expressed genuine pleasure and promised support, the extent of which proved to be nothing short of amazing.

A past president and former secretary of the Canadian Dental Association, Syd was quite conversant with the difficulties that plagued the national organization from its very beginning. In my capacity as secretary I had to make frequent trips to Ottawa where the Bradley residence became my home away from home. Syd and Bert — reverently I say Bert, as he taught me to do — always welcomed me with generous hospitality. On these occasions we talked about the profession, its needs and objectives. Syd was very much inclined to gloss over the current problems which he regarded as being of a superficial nature. He always contended that these would fade away if the basic needs of the profession were properly attended to. This kind of philosophy may seem old-fashioned today. Syd realized that much patience was required, but he never doubted for one moment the profession would master its organizational difficulties.

Nevertheless, the early days of the 1940's were financially embarrassing for the Association. Much had to be accomplished, but our efforts were hampered for lack of sufficient money. At times, the prospect seemed bleak indeed, the future discouraging. Syd Bradley then wrought a miracle which furnishes the main reason for this tribute.

One December morning I received a cheque from him. Appended were four conditions to which he attached more than ordinary emphasis. In effect, they bound me to complete secrecy. Syd stipulated that the donor was to remain anonymous. There must be no record of the transaction. The money was to be used at the discretion of the secretary for the good of the profession, and no accounting of its disbursement was necessary. In my opinion such an action by one of its members has seldom occurred in any profession. But this was merely a beginning. Each subsequent year, in December, Syd would send me a further cheque and he continued to do this with unfailing regularity right up to the time of his recent illness. The amount was never less than \$1,000 and sometimes \$2,000. This latter sum represents about half of the Association's total budget in 1942. Of course, I always gave him, either verbally or in writing, a full explanation of the use to which the money was put.

Came the tenth of February in 1951 when the Association acquired a home of its very own. True to his ideals, Syd began to cast about for something of fundamental value that he might contribute to the new headquarters building. He always worried that the profession had been so careless about preserving its past records. If dentistry was to be a truly scientific profession, he maintained, it would need a national library. And so he set about to transmute this idea into fact. Adhering to my oath of secrecy, I could only advise the Executive Council of the day that such a library could be established without cost to the Association. The Council concurred, the library was born and prospered, but its benefactor remained anonymous.

Inevitably the question arose as to what would happen to the library after Syd Bradley was gone. Over a period of years we examined various plans to meet this eventuality. He often said that he cared little whether or not a piece of granite was raised over his grave; he would rather leave a living memorial. It was typical of the man that such a memorial should be established within his profession.

Syd was wise in the intricacies of finance. At first he wanted to make the library entirely self-supporting. But having examined various other organizations with a similar institutional arrangement, he became convinced that the library would court neglect unless its parent association participated in its sup-

port. As a consequence, and with no surprise to me, his will provides a generous bequest for the sustenance of the library. The only stipulations are that it be named the "Sydney Wood Bradley Memorial Library" and that the money be used to help maintain the library for educational purposes in Canada. Properly invested, he believed the money would help the library to meet the needs of an expanding dental profession.

Syd Bradley enjoyed life to the fullest extent in an unostentatious manner. The simple things appealed to him. But above all, he was a most loyal friend, a comrade in whose company I have been privileged to serve.

Don W. Gullett

Personnel auxiliaire

On s'accorde pour dire que les soins dentaires seront en grande demande dans les années à venir. On croit que pour faire face à cette demande accrue, la profession dentaire devra faire appel à un plus grand nombre d'auxiliaires dont les responsabilités seront très étendues.

On apporte l'exemple de la profession médicale qui, il y a longtemps déjà, a choisi de déléguer aux auxiliaires toutes les tâches qui ne relèvent pas de la stricte compétence du médecin. C'est grâce à cette décision que la médecine réussit à satisfaire aux demandes du public.

L'exemple est probant et l'on est tenté d'appliquer les mêmes solutions aux problèmes que rencontre aujourd'hui la profession dentaire. Il y a cependant des différences fondamentales entre la situation de la profession médicale et celle de la profession dentaire. Bien qu'elles ne constituent pas des obstacles insurmontables, il est utile d'y consacrer quelques minutes de réflexion, si nous voulons apporter à notre problème une solution aussi parfaite et aussi efficace que possible.

Notons d'abord que c'est dans la pratique hospitalière que la profession médicale fait le plus largement appel aux auxiliaires. A ce moment, les responsabilités financières et administratives qu'entraîne leur emploi ne sont pas supportées par le médecin mais par l'institution. A l'hôpital, le médecin se contente de poser les actes médicaux qui sont de sa stricte compétence. Toutes les autres responsabilités sont automatiquement déléguées aux infirmières et autres auxiliaires que l'hôpital met au service du médecin et du patient. Les problèmes qu'entraîne cet état de choses sont confiés à des spécialistes en administration et c'est le patient qui, lorsqu'il reçoit son compte d'hospitalisation, doit payer auxiliaires et administrateurs.

Lorsque le patient acquitte les honoraires de son médecin, il ne paie que les services professionnels qui lui ont été rendus par celui-ci. Il y a donc dans l'esprit de tous les intéressés une distinction très nette entre le service professionnel rendu par le médecin et les services rendus par les auxiliaires.

Lorsque le médecin se retrouve à son cabinet privé, il ne fait pas appel à un aussi grand nombre d'auxiliaires. C'est lui qui, à même son honoraire professionnel, doit payer loyer, matériel et salaires. A ce moment, la plupart de nos confrères médicaux se retrouvent dans une situation qui ressemble énormément à la nôtre. Voulant maintenir leurs honoraires professionnels à un niveau raisonnable et accessible au public, ils sont forcés de faire comme nous, de travailler dans des locaux restreints avec un personnel minimum, faute de quoi, les obligations financières encourues risquent d'entamer dangereusement le montant des honoraires perçus.

Le dentiste qui voudra faire largement appel à des auxiliaires ne pourra le faire sans encourir des risques financiers et sans se charger de problèmes administratifs importants. Il devra agrandir son bureau et se rendre responsable d'un loyer beaucoup plus élevé. Il devra engager des auxiliaires, s'assurer de leur compétence professionnelle, car il demeure responsable de leurs actes vis-à-vis de ses propres patients. Il devra aussi investir un capital considérable pour équiper les locaux dans lesquels les auxiliaires travailleront. Il devra garantir leurs salaires et payer le matériel qu'elles consommeront. Il devra aussi résoudre les problèmes administratifs qu'entraîne l'augmentation du personnel de son cabinet.

Si l'on choisit d'adhérer au système de la libre entreprise, il faut admettre que le dentiste qui investira un capital et acceptera des responsabilités supplémentaires dans le but de soigner une plus grande portion de la population, a droit à une compensation accrue correspondant aux responsabilités additionnelles qu'il accepte, et aux efforts supplémentaires qu'il devra fournir. Si, au contraire, on choisit de vivre dans une société à tendance socialiste, ce n'est pas au dentiste qu'il faudra demander d'investir les capitaux nécessaires à l'emploi d'auxiliaires, ce n'est pas à lui non plus qu'il faudra demander de résoudre les problèmes administratifs qu'entraîne l'usage de ce personnel auxiliaire.

Il y aura peut-être lieu aussi de réviser certaines parties de notre code d'éthique. Nous sommes en effet habitués à considérer comme contraire à l'éthique professionnelle le fait pour un dentiste de faire un profit sur l'acte professionnel d'autrui. Il faudra, soit dissocier l'honoraire versé au dentiste et celui qui sera versé à l'auxiliaire, ou alors accepter que pour un travail effectué exclusivement par l'hygiéniste, le dentiste soit autorisé à percevoir un honoraire supérieur à celui qu'il versera lui-même à son auxiliaire.

Distinction futile? Problème réel? Qui sait. Une chose demeure certaine, les temps changent et la profession dentaire évolue rapidement. Les problèmes que nous rencontrons ne sont pas insurmontables, mais pour se tenir à date, il faut une bonne dose de réflexion.

Les buts de l'éducation • "Nous n'aurons au Canada une philosophie de l'éducation que le jour où dans l'esprit d'une saine tolérance, nous travaillerons ensemble à l'unité dans et par la diversité à l'intérieur d'un contexte typiquement canadien, celui d'une dualité de races et de cultures." — Le T. R. P. Henri Legaré.

Our library becomes the Sydney Wood Bradley Memorial Library

In a historic pronouncement, retiring CDA President J. P. Coupland on May 15 announced acceptance of a \$50,000 bequest in support of the Canadian Dental Association's library. This magnificent gift is a legacy from the estate of Dr. Sydney W. Bradley who died in Ottawa February 20. The announcement was made during the Monday luncheon at the Canadian and Ontario Dental Association centennial convention in Toronto's Royal York Hotel.

Expressing the Association's deep appreciation and gratitude, Dr. Coupland revealed that Dr. Bradley was the anonymous benefactor through whose generosity the library first became a reality when the CDA acquired its own building at 234 St. George Street, Toronto. Dr. Bradley always took an active interest in the library and made regular monetary donations anonymously for its maintenance. He left the stipulation that the library be named "The Sydney Wood Bradley Memorial Library." Earlier during the convention, the CDA Executive Council and Board of Governors adopted a resolution renaming the library as required by the provisions of Dr. Bradley's will.

An orthodontist, Dr. Bradley during an active career of over 50 years in the Ottawa area held many positions of responsibility. He served as president of the Canadian Dental Association 1922-24, and of the Royal College of Dental Surgeons of Ontario 1945-47.

The library occupies 1,040 square feet of floor space in three rooms on the main floor of the Association's headquarters building. Since its inception 16 years ago and under the capable supervision of the librarian, Mlle. Colette Gagnon, the library has grown continuously and now contains 4,457 volumes. The collection of periodical literature includes 158 publications in English, 25 in French and 72

Miss Colette Gagnon, librarian.



Mlle Colette Gagnon, la bibliothécaire

in other languages. The majority are dental journals. Others relate to the fields of medicine, biology, anaesthesia, public health, sociology and economics. The library also receives close to 100 news letters. All are available for loan.



S. W. Bradley

Current books and periodicals are naturally of most immediate use in answering enquiries from CDA members. But the pride and joy of the library are several venerable publications which are to form the nucleus of a future rare book collection. Numbered among them are a

copy of the first volume of the *American Journal of Dental Science* of 1839; Taft's *A Practical Treatise on Operative Dentistry* 1859; Crowley's *Dental Bibliography: a Standard Reference List of Books on Dentistry Published Throughout the World from 1536 to 1885* . . . published in 1885; and Guerini's *A History of Dentistry* 1909.

The library is open and supervised each weekday from 9.00 a.m. to 5.00 p.m. Its services, which include circulation, reference, cataloguing and reading space, are not restricted to those who can visit the building. In fact, most requests are received by telephone (927-3261, area code 416) or by mail. Requested publications, if available, are promptly dispatched and may be returned without charge since return postage is prepaid by the CDA. Catalogues listing the library's holdings are published periodically and circulated to every member of the Association. Lists of more recent new acquisitions are printed in the *Journal of the Canadian Dental Association* to supplement the catalogue.

Notre bibliothèque devient la bibliothèque Sydney Wood Bradley

Dans une déclaration historique, le président sortant-de-charge, le docteur J. P. Coupland, a annoncé l'acceptation d'un legs de \$50,000 au bénéfice de la bibliothèque de l'Association dentaire canadienne. Ce magnifique don provient de la succession du docteur Sydney W. Bradley, décédé à Ottawa le 20 février. La nouvelle a été annoncée au cours du déjeuner du lundi 15 mai, au congrès de l'Association dentaire canadienne et de l'Association dentaire de l'Ontario à l'hôtel Royal York de Toronto.

Exprimant la profonde reconnaissance de l'Association, le Dr Coupland a révélé

que le Dr Bradley était le bienfaiteur anonyme grâce auquel la bibliothèque avait pu être créée, lorsque l'ADC avait acquis l'immeuble situé au 234, St. George Street, à Toronto. Le Dr Bradley s'est toujours intéressé de près à la bibliothèque et contribuait régulièrement à son fonctionnement au moyen de dons anonymes. Son testament demande que la bibliothèque porte le nom de bibliothèque Sydney Wood Bradley. Au cours du congrès, le Conseil exécutif et le Conseil des Gouverneurs de l'ADC avaient adopté une résolution changeant le nom de la bibliothèque conformément aux dispositions du testament du docteur Bradley.



A corner of the library.

Une partie de la bibliothèque.

Au cours des 50 ans de sa carrière d'orthodontiste dans la région d'Ottawa, le Dr Bradley a occupé plusieurs postes de confiance. Il a été président de l'Association dentaire canadienne (1922-24) et du Collège royal des chirurgiens dentistes de l'Ontario (1945-47).

La bibliothèque occupe trois pièces dans l'immeuble du siège social de l'Association et couvre une superficie de 1,040 pieds carrés. Depuis sa fondation il y a 16 ans, la bibliothèque, placée sous la direction de Mlle Colette Gagnon, n'a cessé de croître et compte actuellement 4,457 volumes. Sa collection de revues comprend 158 publications en anglais, 25 en français et 72 dans d'autres langues. La plupart sont des revues dentaires, d'autres se rapportent à la médecine, la biologie, l'anesthésie, l'hygiène publique, la sociologie et l'économie. La bibliothèque reçoit également près de 100 bulletins. Tous les ouvrages peuvent être empruntés.

Les livres et les périodiques actuels sont naturellement ceux qui servent le plus à répondre aux demandes de renseignements des membres de l'ADC. Mais quelques vieux volumes qui seront les premiers de la future collection de livres

rares, constituent les joyaux de la bibliothèque. Citons entre autres, un exemplaire du premier volume de l'*American Journal of Dental Science* de 1839; *A Practical Treatise on Operative Dentistry* de Taft, 1859; *Dental Bibliography: a Standard Reference List of Books on Dentistry Published Throughout the World from 1536 to 1885 . . .* de Crowley, publié en 1885; *A History of Dentistry* de Guerini, 1909.

La bibliothèque est ouverte en semaine de 9h00 du matin à 5h00 de l'après-midi. Ses services (prêts, références, catalogage et salles de lecture) ne sont pas réservés aux visiteurs. En fait, la plupart des demandes arrivent par téléphone (927-3261, code régional 416) ou par la poste. Les ouvrages demandés sont expédiés rapidement lorsqu'ils sont disponibles et peuvent être renvoyés franco de port, les frais de retour étant payés par l'ADC. Un catalogue des ouvrages de la bibliothèque est publié périodiquement et transmis à chaque membre de l'Association. Les listes des acquisitions récentes paraissent dans le *Journal de l'Association dentaire canadienne* pour compléter le catalogue.

An experiment in providing dental service in an outlying area

G. A. Brass,* DDS, BSD, Winnipeg, Manitoba

An experimental extra-mural dental service project was conducted in a rural Manitoba community without a resident dentist during the summer of 1966. An instructor from the University of Manitoba supervised two third year dental students and a first year dental hygiene student during the six weeks' duration of the MacGregor clinic. Community response was excellent. The project also provided valuable clinical and social experience, suitable summer employment and remuneration for the students. Year-round operation of a university dental clinic, as envisaged by the Royal Commission on Health Services, may facilitate the rotation of university-based dental teams to several such projects provided provincial authorities underwrite the additional cost of equipment, personnel and services. Such projects, if they involve undergraduate students, must at all times be under the authority and direction of a faculty of dentistry.

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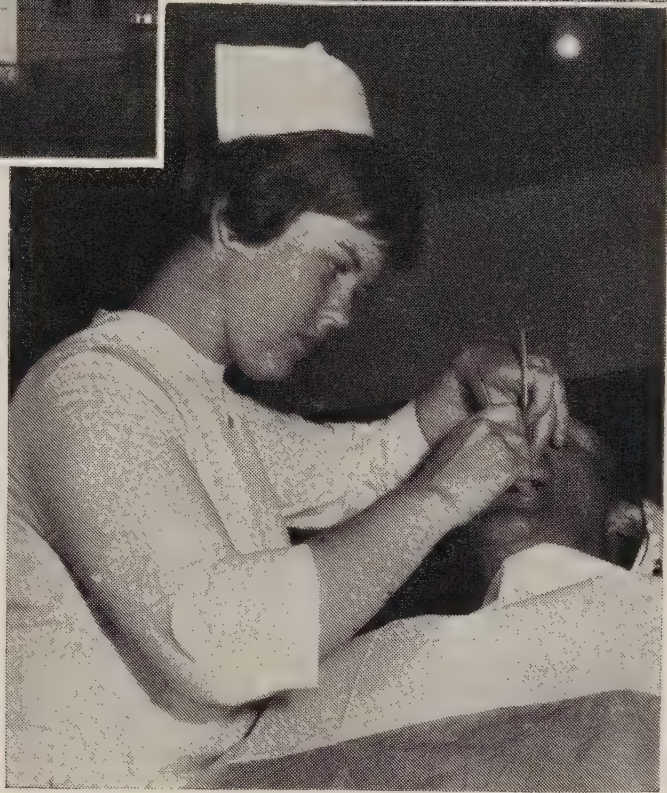
Une clinique universitaire extra-muros a été installée dans une municipalité du Manitoba dépourvue de dentiste pendant l'été 1966. La clinique de MacGregor, qui a fonctionné pendant six semaines, comprenait deux étudiants dentaires de troisième année et une étudiante en hygiène dentaire de première année, travaillant sous la direction d'un professeur de

l'Université du Manitoba. L'accueil de la population fut excellent. Cet essai a fourni aux étudiants une expérience clinique et sociale appréciable, ainsi qu'un emploi d'été rémunéré. Le fonctionnement permanent d'une clinique dentaire universitaire, comme l'envisage la Commission royale d'enquête sur les services de santé, permettrait à des équipes universitaires d'effectuer des stages de ce genre à l'extérieur, si les autorités provinciales contribuaient aux dépenses supplémentaires en équipement, en personnel et en services. Les étudiants non diplômés participant à ces stages doivent être placés en permanence sous l'autorité et la direction d'une faculté dentaire.

Responsible individuals interested in dentistry's future as a profession are concerned about our manpower and its distribution across the nation. A recent provocative article by Hunt¹ discusses this subject and shows how other nations have tried to deal with this question. Canada, meanwhile, has a source of dental manpower that is largely untapped. This reservoir, comprised of undergraduate dental students, has financial needs that parallel the dental needs of society. This combination of needs prompted the co-operative project here reported.



Above left: the building that housed the MacGregor Dental Clinic. Above right: these volunteers took care of local arrangements and kept the patients on the move. Right: student dental hygienist goes to work on a MacGregor resident.



Students invariably return to the clinical years in a dental school after a four month separation from any dental contact—four summer months in which they are occupied at anything from x-raying pipelines to mucking in the nickle mines of the northern bush. Such employment is entirely 'money oriented' and offers no opportunity to practise the skills which the students have painstakingly sought to acquire during the preceding year. This raises several important questions. Can students, dental education, the profession and, most of all, society benefit if undergraduates are employed in a worthwhile professional effort focused at social

groups of limited dental knowledge and opportunities? And would such projects expose students adequately to the problems of this underprivileged segment of society and to the responsibilities that are part of the modern social conscience? (In this context, it is well to remember that the dentally underprivileged may owe their status to circumstances of geography as well as income, a fact that is exemplified in remote areas which frequently have at least a core of highly educated engineers, technicians and teachers, but no dentists.) Can we fulfil these diverse purposes by rotating undergraduate students through periods of extra-

mural dental employment? Can we thereby maintain a year-round program in our dental schools as envisaged by the Royal Commission on Health Services? Does this increase the value of expensive teaching institutions? Can we thereby keep non-academic staff occupied during summer months when university clinics operate at reduced volume?

Year-round operation of a university dental clinic may present some conflict with study and research requirements of the academic staff members. But a departure from the current pattern of teaching seems inevitable; consequently, a prudent administration will protect or even expand the available opportunities for such legitimate and worthy activity. Although additional clinical teachers may be required, the additional cost is a sound investment if it will mobilize during summer months the capital invested in institutions and non-academic staff which are now idle for lengthy periods each year.

The idea behind the project here described was first presented in a brief submitted to the provincial health minister in mid-winter 1966. In the spring, the provincial director of dental care services suggested that the plan be implemented. He offered for the experiment a location where he had spent a good deal of time organizing a project of his own. This was MacGregor, a rural community 20 miles west of Portage la Prairie.

Previous contacts between the provincial dental director and local officials had elicited a good response from the MacGregor municipal council and school board. This enthusiasm increased when the university expressed interest in conducting an experimental dental care project. A meeting was therefore arranged between representatives from the Faculty of Dentistry, the provincial health department, the local council and school board. At this meeting the faculty representative explained that the faculty could only participate in a project designed as an extension of the regular clinical program. Teaching and research, he pointed out, must be the primary concern. The project would have to be university-oriented, not service-oriented. To this end the faculty would require full au-

thority for the conduct and the direction of the project.

OBJECT

The objects of the program were to:

1. Ascertain the value of dental students as an untapped source of dental manpower;
2. Determine how undergraduate students discharge clinical assignments in an extra-mural program;
3. Learn how students are accepted in this role;
4. Ascertain the dental needs in such a community as a guide for the composition of dental teams in similar future projects;
5. Establish a pattern for organization, equipment and space requirements in future projects;
6. Determine how local assistance can best be used; and
7. Provide students with summer employment and simultaneously supply dental service to a remote area.

We stipulated that the students would be guided at all times by instructions and direction from recognized university staff provided by the Faculty of Dentistry. This requirement is essential to the continuity of teaching procedures and for safeguarding the quality of care rendered. The patient must be assured of the highest standard of treatment, and the student must be assured of a comparable level of training.

Our project was conducted in a rural rather than a remote setting because this kind of community happened to be available at the time. Only 80 miles distant from Winnipeg, MacGregor was readily accessible, making the transportation and installation of school equipment practical. This proximity also reduced or provided early answers to unexpected logistical problems affecting supplies, equipment and laboratory service.

PERSONNEL AND COSTS

Two dental students, one dental hygiene student and a member of the dental faculty constituted the professional com-

ponent of the group. A group of local ladies, one acting as clinic manager and two others helping as chairside assistants, were the non-professional members.

The lady employed as manager was the local United Church minister's wife. Being active in church programs, scout groups, and parent-teacher activities, she spread advance information and was able to interpret our objectives to residents of the community. This lady was a great asset both as an advance agent and in the daily routine of telephoning patients, making appointments, and collecting and depositing fees. Her knowledge of the community and the individuals with whom we dealt was of inestimable value.

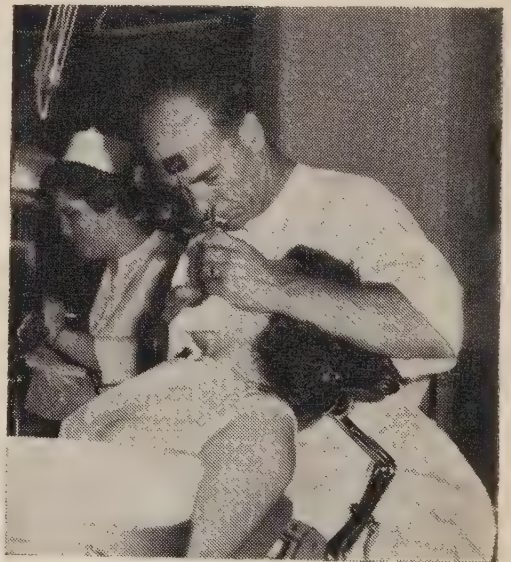
The costs of the project were shared by the three principal groups involved. A house was rented by the municipality, which also paid the salaries of the three

local women and supplied local labour and material for installation of the dental equipment. The provincial health department paid the salaries of the students and transported the equipment. The university supplied the dental equipment, the consumable supplies and paid the university staff employed. The cost of insuring the equipment and supervising its installation by capable personnel was also assumed by the university.

ORGANIZATION

Accommodation. — The dental hygiene student obtained room and board at the local hospital which was adjacent to the building that housed the clinic. The dental students were accommodated on the second floor of the clinic building. They

Right: C. R. Castaldi, one of the supervising dentists from the University of Manitoba, checks a student's work. Below: third year students Fraser and Sapkin treat patients.



prepared their own breakfast and obtained other meals at a local restaurant. The university staff member stayed at the local hotel and obtained his meals at the local restaurant. This arrangement avoided what might have been interpreted by the students as unwarranted after-hour supervision.

Equipment. — The x-ray unit was mounted against a wall in the kitchen. The chair for this area was borrowed from the Royal Canadian Dental Corps. The dark room was constructed of plywood and fitted with a heavy drape of black light-resistant material. Sterilizing equipment—both trays of chemicals and the autoclave—was placed on a barrack-room table against one wall and the cleaning and preparation area was accommodated on a second barrack-room table placed against another wall. Shelving was installed in the pantry. This served as a storage centre for materials, linen, and so forth.

We constructed a secondary floor of plywood and two by four timbers over the dining and living-room floor. This provided room for installation of plastic piping for water, air and drainage as well as the necessary electrical wiring. By using the hot air registers to accommodate these facilities we were able to avoid putting holes through the floor itself. Moreover, the judicious application of wedges enabled us to obtain a level floor.

A den immediately inside the front door became an office and waiting room, the porch serving to satisfy the overflow needs.

SERVICES

Early in the program, we had to determine the limits of our clinical participation. We agreed to concentrate on primary prevention (prophylaxis and topical fluoride application) and simple extractions for adult and deciduous dentitions. We tried to obtain bitewing radiographs of all patients requiring operative treatment and, while not 100 per cent successful, we did make a pretty good showing in this area. We also made fixed space

maintainers for several adolescent patients as well as one anterior and one posterior bridge (see Schedule).

Schedule

Duration of clinic: 6 weeks (28 working days)

Personnel: 1 instructor, 2 dental students (completed third year), 1 dental hygiene student (completed first year), 2 dental assistants (local, untrained), 1 secretary (local)

Registered patients requiring service: 345

Patients who received primary preventive treatment (prophylaxis, NaF): 118

Patients for whom treatment course was completed: 25 (including 13 children)

Patients who received considerable treatment but whose treatment course was not completed: 227

Mean number of patients seen per day (including patients seen by dental hygiene student): 13/day

Mean number of patients seen per day by dental hygiene student: 3/day

Mean number of patients seen per day for other services: 10/day

Mean number of patients seen per day for emergency care: 1.4/day
39/6 weeks

Extractions: 81 (including 23 deciduous teeth)

Removal of retained roots: 1

Alveoplasty: 1

Pulpotomy: 1

Silver alloy restorations: 21

Gold foil restorations: 2

Occlusal adjustment: 5

Periodontic treatment (excluding prophylaxis, NaF): 10

Fixed bridges: 2 (one anterior — 6 units, one posterior — 3 units)

Stainless steel crowns: 13

Space maintainers: 6

No complete or partial dentures were made.

CONCLUSIONS

The program was valuable from the standpoint of professional relations both with the public and with government. It broadened the students' understanding of dentistry and its place in the total community. It also served a public health need.

The community which we served accepted undergraduates in a professional role with gratitude. I am convinced that further studies in other communities, under varying degrees of participation and responsibility, are justified.

If the profession is interested in having trained auxiliaries act in various clinical roles, a similar program would be ideal for testing their usefulness, their acceptance and their reaction to a professional relationship. The concept of group service and shared responsibility can also undergo scrutiny in such an environment.

We encountered some difficulty in explaining to parents our reasons for developing a broad program rather than one oriented to children and to the adolescents alone. This could be alleviated if clinical teams were to return at sufficiently frequent intervals to relieve the urgency for care of the young.

We were able to assess our students—their strengths and their weaknesses—in a changed environment. Although they had only had one year of clinical experience, we were nevertheless able to conclude that they were weak in diagnosis—particularly of the state of the dental pulp.

Stainless steel crowns would have been much more practical than pin reinforced amalgam restorations in many cases; this fact emphasizes the magnitude of some of the restorative service that had to be undertaken. Additionally, a period of orientation to the anticipated environment would have been of considerable value.

Future studies should assess the effect of:

1. Including two dental hygiene students in the team in order to provide a greater volume of preventive services. All parties to the program would benefit.
2. Including one assistant for the two dental hygiene students as well as an

assistant for each of the undergraduate dental students.

3. Adding a dental laboratory technician so that the program may include some prosthetic services.

4. Joint participation of public health officials and university personnel in a program of dental health education prior to the opening of such a clinic. This group could also clarify other points of concern, especially that the fees charged (dental school fees plus cost of the materials) represent only a portion of the actual cost of services, and that the university and the local and provincial governments carry a considerable share of the fee load. This is essential in order (1) to protect local dentists to whom these people may turn in the future and (2) to maintain harmonious relations between these practitioners and the university.

In addition, funds should be provided (a) to work out a more acceptable organization of the equipment, (b) for obtaining equipment more acceptable to the task, and (c) for developing a system of packing and transporting such equipment bearing in mind that, in this province at least, an expanded program may necessitate travel by air.

Furthermore, if a dental school becomes involved, it should obtain sufficient funds from the provincial health department to support staff members who are responsible for and participate in the extra-mural teaching program.

SUMMARY

The development of university-oriented extra-mural community dental service projects can serve several useful ends:

1. They provide summer employment for undergraduates, thereby occupying the students in a manner and to a degree that benefits them and the community.
2. These projects are practical in a close to immediate sense. Organizational and administrative problems vary with each geographical area, but with adequate assistance a dental school can begin such projects on a modest scale and build with experience.
3. It should be possible to develop a

system of rotating university-based dental teams through such extra-mural projects throughout the year. A university dental clinic could then be kept in operation on a year-round basis as suggested by the Royal Commission on Health Services.

4. Subject to the limits of flexibility, teams of varying size and composition could be assigned to meet the needs of participating communities. The latter would have to furnish chairside and local administrative assistance for these periodic visits. Moreover, the team approach for handling dental problems could be tested in a manner as yet undeveloped in the schools.

5. Untapped flexible manpower is available; this fact should be of interest to an enterprising health department. Since the services rendered have public health significance, provincial authorities should help to underwrite the cost of treatment, the necessary equipment, the research and the additional personnel involved.

Regardless of the arrangement, the faculty of dentistry must have full authority in any program involving under-

graduate teaching. There is always a danger that well-meaning public health administrators, particularly senior officials who sanction the disbursement of funds, may be carried away by enthusiasm for the service aspect of the program. They may forget that such a project, although extra-mural, must remain university-oriented and that the personnel must be subject to the guidance and restraint necessary at this level of professional development. Any move which releases undergraduates from faculty supervision over discipline, practice principles as well as treatment procedures would be an exercise of irresponsibility in conflict with dental practice acts and irreconcilable with the idealism that is part of a university's objectives.

The author expresses deep appreciation to all who assisted in this experiment: the Royal Canadian Dental Corps for the use of equipment; the local council and school board of MacGregor and district; the staff of non-professional assistants; C. H. McCormick, Director of Dental Care Services, Department of Public Health, Province of Manitoba; and C. R. Castaldi, T. G. Snihurowycz and Z. Kasloff of the Faculty of Dentistry, University of Manitoba.

*Professor and head of the Department of Restorative Dentistry, University of Manitoba.
1. Hunt, A. M. Planning for dental care services in Canada. J. Canad. Dent. Ass. 32:464, 1966.

780 Bannatyne Avenue

Kellogg Foundation Helps Launch Federation of World Health Foundations • Over a three year period, the Federation of World Health Foundations will use a grant of \$418,200 from the W. K. Kellogg Foundation, Battle Creek, Michigan, for support during its developmental period and "to export the American philosophy of voluntary giving to other nations of the world." The Federation, which headquarters at Geneva, Switzerland, was created by the World Health Organization to serve as a central mechanism of co-operation and co-ordination for national world health foundations, recently established in the United States, United Kingdom, Canada, and Switzerland, and planned for Japan, Sweden, Germany, the larger nations of Latin America, and possibly other countries. These foundations are autonomous, legal entities created to seek gifts and grants for the development of systematic voluntary support for world health. After initial support and assurance of continuity, they should become recognized and continuing forces for health improvement both in their countries and internationally. The executive director of each such foundation will be given an intensive course of training in the United States in regard to voluntary organizations and their *modus operandi*. His subsequent efforts will be backed by a combined national leadership representing business, the professions, scholars, and the arts, with the chief purpose being voluntary non-governmental giving to improve human health and well-being. The development by each national foundation of continuing voluntary support from business, industry, and the public seems assured because preliminary discussions with leading executives of business and industry show the existence of a powerful social force for world health improvement. The technical competence of the World Health Organization and its regional offices will be available upon a contractual basis to the national foundations to help evaluate proposals for grants, requests for aid, and administrative reviews of project progress; otherwise, each foundation would need to employ a larger, full-time professional staff which would be competitive with WHO and an unnecessary duplication of already scarce manpower. In recognition of the growing significance of the world health movement and in view of the social implications of the underlying principle of the proposal, the Kellogg Foundation is supplying the funds to cope with the immediate need — that of launching the Federation as an effective operating agency during its initial years.

Control of radiation hazards in the use of dental x-ray apparatus

Council on Research

In modern dentistry the x-ray is accepted as an indispensable diagnostic aid. Nevertheless, there can be hazards both to the operator and the patient from the injudicious use of x-rays. These hazards take three main forms: skin changes, damage to deeper tissues, and genetic harm. The first of these is more likely to be seen in the operator since, if he is unwise enough to hold the film in the patient's mouth, it is the skin of his hands which is liable to receive excessive radiation. Such damage as occurs is seen as dermatitis or malignancy. Damage to the deeper tissues could include almost any structure, but the bone marrow and lymphatic tissue require special consideration as the adverse effects of radiation here may be seen as leukaemia. The genetic effects of radiation have attracted considerable attention because it is known that x-ray exposure of the gonads may result in damage which will only be manifest in later generations. In addition, the power of recovery following radiation is less for gonadal tissue than for somatic tissues. Furthermore, the safety threshold dose for the gonads is not known but it is thought to be much lower than for other tissues.

Details of precautionary steps are outlined for protection of the patient and

protection of the operator, but many points concern the restriction of x-ray output and they therefore will be of general benefit.

PROTECTION OF THE PATIENT

1. The patient should be questioned concerning recent x-ray exposure to the head and neck. If this has been large, there should be a minimum time lapse of three weeks before further exposures are made.

2. The x-ray beam should be collimated. This means that the beam emerging from the head of the x-ray apparatus is limited to the area under investigation. This can be achieved by various types of equipment, the simplest being a lead diaphragm at the base of the pointer cone. For intra-oral radiographs the diameter of the x-ray beam should not be more than $2\frac{3}{4}$ inches at the level of the patient's skin.

3. Filters of pure sheet aluminum should be placed between the x-ray beam source and the patient to yield a total filtration equivalent to 2 mm. of aluminum. This will reduce the skin dose by absorbing most of the soft radiation from

the beam. Soft radiation is referred to as the non-useful beam since it is not instrumental in forming the radiograph. An excessive amount of soft radiation could cause damage to the patient's skin.

4. The fastest practicable film should be used, bearing in mind the overriding factor that it must give a radiograph of good interpretative value. In order to obtain best results, a fully-controlled time and temperature developing technique must be used. Any reduction in developing time will necessitate increased exposure time.

5. The optimum kilovoltage (kv), considering safety and the quality of the radiographic picture, is still a matter of discussion. It is probably correct to say that majority opinion favours the 60-90 kv range. This factor, however, is of less importance than some of the other points which are here discussed.

6. The problem of x-ray leakage from the housing of modern x-ray machines is very slight. With older machines, which may have inadequate or faulty shielding in the tube housing, this leakage can be significant. Radiation from this source can be detected by means of radiation instruments or films. (Radiation detection services are available through most of the provincial health departments.)

7. The use of a leaded apron on the patient is recommended as a simple means of protecting the gonads from irradiation.

8. In cases of pregnancy, the above mentioned precautions should be meticulously observed, and a protective apron providing full coverage should be used routinely.

PROTECTION OF THE OPERATOR

The danger to the operator arises from primary radiation caused by direct exposure to the x-ray beam and from secondary radiation scattered from the pointer cone of the apparatus, the pa-

tient's face, or any other object exposed to the primary beam.

The following precautions are necessary to protect the operator from the primary beam:

1. Never stand in the path of the primary beam.

2. Never hold a film pack in the patient's mouth while an exposure is being made.

3. Never hold the pointer cone or the tube housing of the x-ray apparatus during exposure.

The following precautions are necessary to protect the operator from secondary radiation:

1. The cord to the timer switch should be long enough to permit the operator to stand about 10 feet from the patient during operation of the machine. Exposure to scattered radiation decreases with the distance the operator stands from the patient (the intensity of radiation varying inversely as the square of the distance from the source).

2. The safest position for the operator during the exposure of dental film is approximately at a right angle to the direction of the x-ray beam.

3. If these precautions cannot be followed, or as an added safety measure, the operator may be able to stand behind a wall (brick or concrete) or a lead screen.

The operator may wish to check on the effectiveness of his safety precautions. This can be done in many ways, the most reliable of which is utilization of a radiation protection service available from the Film Monitoring Service, Radiation Protection Division, Department of National Health and Welfare, Brookfield Road, Ottawa 8, Ontario.

In conclusion, it must be emphasized that the x-ray apparatus should only be operated by a person who has been trained in its correct use. It is only by this means that the patient can receive the advantage of x-rays in dentistry without there being a risk of over-exposure of the patient or the operator.

La prévention des dangers liés à l'emploi des appareils de radiographie dentaire

Conseil de la recherche

La radiographie est devenue un instrument de diagnostic indispensable à l'art dentaire moderne. Cependant, si elle est employée de façon irréfléchie, elle comporte des dangers et pour l'opérateur et pour le patient. Ces dangers sont de trois sortes: modifications cutanées, atteintes des tissus profonds, troubles génétiques. Les premières concernent surtout l'opérateur car s'il a l'imprudence de tenir le cliché dans la bouche du patient, la peau de ses mains est exposée à un excès de radiations. Les lésions prennent la forme de dermatite ou d'atteinte maligne. Les lésions des tissus profonds concernent presque n'importe quelle structure, notamment la moelle osseuse et le tissu lymphatique, car les effets délétères des radiations peuvent provoquer la leucémie. Les effets génétiques ont beaucoup retenu l'attention, puisque l'on sait que l'exposition des gonades aux rayons X peut provoquer des dommages qui n'apparaîtront que chez les générations suivantes. De plus, les chances de guérison du tissu des gonades sont moindres que celles des tissus somatiques. Par ailleurs, la dose qui constitue le seuil de sécurité pour les gonades demeure inconnue, mais on la croit plus basse que pour les autres tissus.

Parmi les mesures visant à la protection du patient et de l'opérateur, de nombreux points concernent la réduction du débit de radiations et assurent par conséquent une protection générale.

PROTECTION DU PATIENT

1. Demander au patient si son cou et sa tête ont été exposés aux rayons X récemment. S'il y a eu une exposition importante, on ne devrait pas procéder à de nouvelles expositions avant trois semaines au moins.

2. Le faisceau de rayons doit être collimaté. Le faisceau provenant de la tête de l'appareil est ainsi restreint à la région examinée. Cela peut se faire au moyen de divers instruments, dont le plus simple est un diaphragme placé à la base du cône. Pour les radiographies intra-orales, le diamètre du faisceau de rayons ne devrait pas dépasser 2¾ pouces à la hauteur de la peau du patient.

3. Des feuilles d'aluminium pur devraient être placées entre la source du faisceau et le patient afin d'assurer une filtration égale à celle de 2 mm. d'aluminium. Cette filtration réduit l'exposition de la peau en absorbant la plupart des rayons mous du faisceau. On appelle ces rayons mous le faisceau inutile, puisqu'ils ne concourent pas à former l'image. Un excès de rayons mous pourrait affecter la peau du patient.

4. Utiliser le film le plus rapide possible, sans oublier qu'il doit avant tout fournir une radiographie qui s'interprète bien. Pour obtenir les meilleurs résultats, on doit utiliser une technique de développement parfaitement au point en ce qui concerne le temps et la température. Toute réduction du temps de développement nécessite une augmentation du temps d'exposition.

5. Le kilovoltage (kv) optimal relativement à la sécurité et à la qualité du cliché est encore débattu. On peut sans doute dire que la majorité se prononcerait pour un kilovoltage de 60 à 90 kv. Ce facteur est cependant moins important que certaines autres questions discutées ici.

6. La question des fuites de rayons est peu importante avec les appareils modernes. Cette fuite peut être importante avec les appareils anciens, dont le logement du tube risque d'être insuffisamment ou mal blindé. Les pertes de rayons peuvent être recherchées au moyen de

films ou d'appareils de détection. (La plupart des ministères provinciaux de la santé disposent de services de détection des radiations.)

7. On recommande de couvrir le patient d'un tablier de plomb, qui est un moyen simple de protéger les gonades contre les radiations.

8. Les précautions ci-dessus devraient être scrupuleusement observées dans les cas de patientes enceintes; on devrait employer systématiquement un tablier protecteur qui les couvre complètement.

PROTECTION DE L'OPÉRATEUR

Pour l'opérateur, le danger provient de l'exposition directe aux rayons primaires du faisceau émis et des rayons secondaires issus du cône de l'appareil, du visage du patient ou de tout autre objet exposé au faisceau primaire.

Les précautions suivantes sont nécessaires pour protéger l'opérateur du faisceau principal:

1. Ne jamais se tenir sur le trajet du faisceau primaire.

2. Ne jamais tenir le film dans la bouche du patient pendant l'exposition.

3. Ne jamais tenir le cône ni la tête de l'appareil pendant l'exposition.

Les précautions suivantes sont nécessaires pour protéger l'opérateur des rayons secondaires:

1. Le cordon du commutateur devrait être assez long pour permettre à l'opérateur de se tenir à 10 pieds du patient pendant le fonctionnement de l'appareil. L'exposition aux radiations éparses diminue quand l'opérateur s'éloigne du patient (l'intensité des rayons varie selon l'inverse du carré de la distance à la source.)

2. La position la plus sûre de l'opérateur durant l'exposition d'un cliché dentaire se trouve approximativement à angle droit par rapport au faisceau de rayons.

3. Si l'opérateur ne peut pas suivre ces précautions, ou s'il désire une protection supplémentaire, il peut se placer derrière un mur (brique ou béton) ou un écran de plomb.

Si l'opérateur désire vérifier l'efficacité de ses mesures de sécurité, il peut le faire de plusieurs façons, dont la plus sûre est de recourir au service de protection contre les radiations qu'offre la Division de la protection contre les radiations du ministère de la Santé nationale et du Bien-être social, dont l'adresse est Brookfield Road, Ottawa 8, Ontario.

En conclusion, il faut souligner que seule une personne ayant reçu une formation à cet effet devrait faire fonctionner un appareil de radiographie. C'est là le seul moyen d'assurer au patient le bénéfice de la radiographie dentaire sans faire courir au patient ou à l'opérateur le risque d'une exposition excessive.

Vieux numéros et réimpressions du Journal

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Centennial Convention Draws 2,148 dentists to Toronto

A unique national convention, marking the hundredth birthday of the Ontario Dental Association and the nation's centennial celebrations, attracted more than 3,914 dentists and their ladies as well as dental students, hygienists, assistants and commercial exhibitors to Toronto for the combined annual meetings of the Canadian and Ontario Dental Associations. While business, special and social programs of the two groups set the theme of "What's Past is Prologue," the highlight of the meeting was the exceptional scientific program, which included panel discussions, essays, clinical lectures, table clinics, motion pictures, and scientific and technical exhibits on various aspects of dentistry.

The annual meeting of the Board of Governors, held from May 10-13, preceded the convention May 14-17.

W. P. Munsie of Vancouver was installed as 47th president of the Canadian Dental Association on May 15. He succeeds J. P. Coupland of Ottawa. Past President H. M. Cline, Vancouver, officiated at the installation.

Born in Winnipeg, Dr. Munsie served with the Royal Canadian Navy from 1941 to 1945. He earned a doctor of dental medicine degree from the University of Oregon in 1949. A past president of the Vancouver and District Dental Society (1956-57), the British Columbia Dental Association (1957-58) and the College of Dental Surgeons of British Columbia (1961-65), Dr. Munsie has been a member of the Canadian Dental Association's Board of Governors since 1961. He was elected to the CDA Executive Council in 1963. Dr. Munsie was also a founding trustee of the Canadian Fund for Dental Education, an honorary governor of the Canadian Association for Retarded Children, a convocation founder of Simon

Fraser University in Vancouver, and a fellow of the American and International Colleges of Dentists.

Henri Brouillet, Montreal, was named president-elect of the Association. Dr. Brouillet has represented the College of Dental Surgeons of the Province of Quebec on the CDA Board of Governors since 1966. He served two terms as president of the CDSPQ (1962-64 and 1964-66).

Named as members of the Executive Council were W. G. Bruce, Kincardine, Ontario; A. L. MacIsaac, Charlottetown, Prince Edward Island; H. R. MacLean, Edmonton; and W. J. Spence, Toronto.

Elected as chairmen of councils and committees were: W. P. Munsie, Vancouver, Executive Council; J. P. Whyte, Swift Current, Saskatchewan, Council on Constitution and By-laws; W. J. Dunn, London, Ontario, Council on Education; L. I. Duffy, Charlottetown, Prince Edward Island, Council on Ethics; J. M. Phillips, Oshawa, Ontario, Council on Journalism; J. A. Whyte, Ottawa, Council on Legislation; K. W. Davey, Toronto, Council on Public Health; R. M. Grainger, Toronto,

Continued on page 378



CDA-ADC Toronto 1967

W. P. Munsie
President, 1967-8

PHOTOS ON FACING PAGE

(1) Retiring President J. P. Coupland presided at the sessions of the Board of Governors. He is flanked (l. to r.) by Secretary W. G. McIntosh, incoming President W. P. Munsie, Treasurer G. M. Dewis and former President P. S. Christie. (2) Dr. Coupland explains an action of the Board of Governors to a reporter. (3) L. E. English and K. F. Pownall personally congratulate Mr. and Mrs. Gordon B. Watson after the conferring of an honorary CDA membership on Mr. Watson.

CLICHÉS EN FACE

(1) Le président sortant de charge J. P. Coupland qui a dirigé les séances du Conseil des Gouverneurs. On remarque (g. à d.) le secrétaire W. G. McIntosh, le nouveau président W. P. Munsie, le trésorier G. M. Dewis et l'ancien président P. S. Christie. (2) Le docteur Coupland explique à un journaliste les décisions que vient de prendre le Conseil des Gouverneurs. (3) L. E. English et K. F. Pownall offrent leurs félicitations à M. et Mme Gordon B. Watson après avoir décerné le titre de membre honorifique de l'ADC à M. Watson.



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Council on Research; Max Nacht, Vancouver, Auxiliary Services Committee; J. G. Ryan, Vancouver, 1968 Convention Committee; P. E. Currie, London, Ontario, Dental Services Committee; J. Kreutzer, Toronto, Headquarters Property Committee; P. T. Smylski, Toronto, Hospital Services Committee; Henri Brouillet, Montreal, Nominations Committee; and O. J. Yule, Toronto, Specialists and Specialization Committee.

Honorary membership in the Canadian Dental Association was conferred on Gordon B. Watson of Toronto. A member of the firm of Smith Rae Greer, barristers, Mr. Watson is legal counsel to the Canadian Dental Association and the Royal College of Dental Surgeons of Ontario.

Distinguished foreign guests included W. Roland Cleverley representing the British Dental Association; E. A. Cheney, trustee for the ninth district of the American Dental Association; Harold Hillenbrand, secretary, American Dental Association; and Sir John Walsh, dean, University of Otago Dental School, Dunedin, New Zealand.

Local arrangements were capably handled under the direction of R. G. Ellis, convention chairman.

Board of Governors Actions

At the opening session members of the Board of Governors and others in attendance observed one minute of silence in memory of Association members who died during the past year.

President's Remarks. President Coupland then delivered the president's report. He congratulated the Ontario Dental Association on its hundredth anniversary and also for becoming, in May, the CDA corporate member for Ontario.

He referred to the successful amendment of the Canada medicare bill (C-227) late last year and praised dentists from all parts of Canada who informed members of the House of Commons and Senate about objectionable features of the original bill. "This campaign," said Dr. Coupland, "was ably co-ordinated by the CDA secretary who was magnificently supported by the corporate members, the

CDA Council on Legislation, the deans of the dental schools, and other groups and individuals too numerous to mention."

The president also reminded his audience about the shared cost provisions of the Canada Assistance Plan (Bill C-207) passed last year. This sharing covers the cost of dental care including dentures, the president observed. Noting local efforts to take advantage of the money thus made available, Dr. Coupland asked the corporate members to keep the CDA informed of all new programs initiated under the Canada Assistance Plan.

Dr. Coupland then urged the creation of an undergraduate membership classification to encourage students' early participation in organized dentistry. "Every available means should be employed to make dentists aware of their professional responsibility to the community . . . if the interests of the public and the profession are to be served," he declared, adding: "The earlier this interest is created, the greater is the potential for service."

Turning to the services provided by the Canadian Dental Association, President Coupland warned that the headquarters staff is being overtaxed by growing demands from many sources. He urged a critical examination of the Association's aims and objectives to establish priorities which will give the greatest benefit to CDA members. This is necessary, he said, until more money becomes available to increase the depth of headquarters staff and facilities.

The Board then considered reports from each of the Association's councils, committees and sections and took the following actions:

Auxiliary Personnel. The Board decided that the Association's existing policy statement on auxiliary personnel should continue as the basis for limiting the role of the dental hygienist. The Board also:

Suggested that provincial licensing boards provide necessary legislation and educational institutions provide necessary facilities to enable auxiliary personnel to perform any duties that fall within the framework of the CDA policy statement on auxiliary personnel;

Defeated a motion directing the Auxiliary Services Committee to investigate the feasibility of training a single dental auxiliary capable of performing the services of a dental hygienist and dental assistant;

Approved the establishment of a national certification board for dental assistants;

Received a report of the CDA-sponsored dental laboratory technicians conference held in January of this year, and

recommended that a further conference be held in 1968.

In other actions, the Board authorized expansion of the Auxiliary Services and Dental Services Committees so as to include a representative from each corporate member on each of these committees. The Board urged each corporate member to establish parallel auxiliary services and dental services committees from which the representatives to the two

A small sampling of the radio, television and press publicity generated by the centennial convention.

Quelques exemples de la publicité qu'ont faite la radio, la télévision et la presse, à l'occasion du congrès du centenaire.

New dental program 'may be a burden'

Increased public demand for dental services is likely to burden the profes-

will 'make' teeth good as new

Dental clinics in Canada and the U.S. are testing one of the most exciting restorative-dentistry products to appear. It will be discussed in detail at next week's convention of Canadian dentists in Toronto. The product is a polymer plastic, reinforced with inorganic and glass fillers. It is a product of co-operative research begun years ago by Eastman research.

The prod-

re Canada's dentists really all-bent on self-elimination

toothless league

water? Has it million). This figure was compiled by Dr. P. D. will sociate professor for children, Uni- and Dr. C. of oper- two doct- mful effe- neral heal- idation is on per year do- mo- wood to bu.

Hovercraft chair latest for dentists

Dental meeting has big pull

Other items on exhibition for the 2,500 of Canada's 6,500 dentists attending the Royal

Cheapest 'trip' in town

for the hippies of 1967, the cheapest trip in town was as the nearest dentist had laughing gas on days was quite sophisticated, compared to other profes- on the fact that many basic s, some extracting, and even the fit- mon among Ontario's 60 den- tists at Confederation. Another factor, Dr. Daly said, is the unchanging nat- of the profession itself: if dentistry is in it - then, it doesn't

'denticare'

ice is being serviced by people with the means to purchase it and who are regarded by their dentists as regular patients. Another area, he went on, over what propor-

Fluorides cut work of dentists

Fluoride is cutting

official

are urged to press for 'Denticare'

"shocking statistics of dental disease" noted that half the 45 and two lost all

Installing Officer H. M. Cline (l.), Vancouver, presents a silver tray to retiring CDA President J. P. Coupland.



H. M. Cline, Vancouver, qui présidait à la cérémonie d'intronisation, offre un cabaret d'argent à l'ancien président J. P. Coupland.

CDA committees might be selected. The Board also instructed the Council on Education to study " . . . the possible effects and applicability of [conducting] diploma courses in dental hygiene in post-secondary institutions other than universities."

Specialties and Sections. The Board extended recognition to the Canadian Society of Public Health Dentists as a new CDA section. The CSPHD thus becomes the eighth CDA section. The Board also:

Declared a moratorium on the recognition of additional sections;

Asked the Specialists and Specialization Committee to study the Association's by-laws pertaining to sections; and

Received a preliminary draft statement on the recognition of special areas of dental practice and asked the Specialists and Specialization Committee to review this statement for presentation at a future meeting of the Board.

In other actions, the Board ruled that the Association cannot direct the actions of provincial licensing boards. The Board therefore rejected proposals that the Canadian Dental Association persuade all provincial licensing boards to recognize endodontists and prosthodontists as specialists and endodontics and prosthodontics as special areas of practice.

Research. The Board approved an updated statement on control of radiation hazards in the use of dental x-ray apparatus. The Board also:

Reiterated its support for water fluoridation;

Amended the Association's existing policy statement on fluoride supplements for the prevention of dental caries (the amended statement now embraces automatic metering devices for fluoridating domestic water systems);

Asked the Council on Research to propose a method of providing guidance on the value of Canadian materials, devices and therapeutic agents offered to the dental profession;

Instructed the Council on Research to expand the policy statement on carbohydrates and caries by stressing the merits of consuming non-cariogenic foods and beverages; and

Terminated the fellowship and studentship program hitherto administered by the Council on Research. This program will henceforth be supported through the Canadian Fund for Dental Education.

Preventive Dentistry. The Board authorized the Council on Education to sponsor a teaching conference on community and social dentistry and requested that council to sponsor an early teaching conference on preventive dentistry. The Board also:

Recommended that undergraduate curricula stress preventive concepts in dental practice;

Encouraged the development of graduate and postgraduate courses in preventive dentistry; and

Urged the CDA and other dental associations to include lectures and short courses on preventive dentistry in their convention and continuing education programs.

The Board also instructed the Council on Public Health to study and recommend legislative provisions for water fluoridation.

Future Conventions. The Board revised the proposed dates for the 1968 and 1970 national conventions (June 24-29, 1968; June 29-July 4, 1970). The Board also:

Accepted an invitation from the Essex County Dental Association to hold the 1971 national convention in Windsor, Ontario; and

Concurred with a proposal that the CDA conduct independent national conventions after 1971. National conventions will then be directed by a standing committee.

Legislation. The Board commended the Council on Legislation for bringing the views of the dental profession to the attention of Members of Parliament prior to the enactment of the Canada Medical Care Act (Bill C-227) in December 1966. The Board also directed the Council on Legislation to propose means for improving communication between the dental profession and federal legislators and policy makers.

Dental Services. The Board empowered the Dental Services Committee to invite consultants from operating dental service plans.

Noting the committee's current study of prepayment principles, the Board asked that this be enlarged to (1) encompass all available information on existing prepayment plans, (2) compare the activities and scope of existing plans, and (3) recommend how far the profession should be involved in the operation of such plans. No further policy statements on this subject will be published until these studies are completed.

The Board also requested the Executive Council to invite corporate members to comment upon the existing policy statement on projection of dental services and recommend possible changes in this statement.

Finally, the Board directed that "the Canadian Dental Association urge the federal government to pay for all dental services by relating fees to provincial fee schedules."

Children's Dental Health Plan. Impressed with the urgency of this matter, the Board instructed the Executive Council to give "immediate top priority consideration to the establishment of a task force" to accelerate the formulation of a

children's dental health plan. The Board ordered that adequate funds be provided so that this task force may obtain assistance from experts in the social sciences.

Submitted Resolutions. The Board considered two resolutions submitted by the Ontario Dental Association. Resolution No. 1 urged "the Canadian Dental Association to study the [present] CDA Constitution for the purpose of altering its content to conform to the 1952 constitution pertaining to the powers and duties of the Executive Council." Resolution No. 2 requested that "the mover, seconder, and division of the vote be recorded for each motion." Both resolutions were considered at length. In view of the reference committee procedure instituted at the 1967 annual meeting, the Board ruled that Resolution No. 2 is not pertinent. Both resolutions were referred back to the Ontario Dental Association Board of Governors for further consideration.

Miscellaneous. In other actions, the Board:

Adopted a budget amounting to \$281,670 for 1968;

Approved the formation of practice corporations to provide services to a dentist or group of dentists provided the majority of voting shares are held by dentists;

Directed the Executive Council to develop guidelines on legal and taxation aspects of practice incorporation;

Urged all corporate members to develop or acquire a group malpractice policy for their members;

Increased the fees for associate membership from \$8 to \$10 beginning in 1968;

Authorized a new CDA membership category for undergraduate students at accredited Canadian dental schools and for dentists who proceed directly from undergraduate to advanced studies;

Requested the Executive Council to study the possible formation of a student division within the Canadian Dental Association;

Concurred with development of a reserve fund equivalent to twice the Association's annual budget;

Appointed D. W. Gullett, Toronto, as CDA archivist;

Requested the Executive Council to consider augmenting CDA staff services in support of the National Recruitment Committee;

Received a progress report from the Canadian Fund for Dental Education (also accepted the resignation of W. P. Munsie, Vancouver, and appointed M. J. Lipkind, Calgary, as CFDE trustee);

Approved revised guidelines for hospital dental services;

Authorized an amendment to the Constitution of the Canadian Society of Dentistry for Children to permit representation from the Canadian Academy of Paedodontics on the national executive council of the CSDC;

Approved amendment of Article XI, Section 1 of the CDA By-laws to include sections on endodontics and restorative dentistry;

Congratulated the president and members of the Ontario Dental Association on the occasion of the hundredth anniversary of the founding of that organization;

Noted that the Executive Council has initiated a five year projection of the Association's needs and services, and asked the Council to examine the Association's aims and objectives in order to

establish priority for services likely to provide the greatest value to the membership;

Directed the Executive Council to study means of developing better communication between the Canadian Dental Association and the Canadian Medical Association; and

Instructed the Executive Council to ascertain the legal interpretation of "provincial statutory dental corporations" as mentioned in Article II, Section 1 of CDA By-laws, and requested the Council on Constitution and By-laws to review this mentioned portion of the By-laws and provide a definition that is "clear and unequivocal."

Seen and Heard at the Centennial Convention

The national convention program began on Sunday evening May 14 with a Concert Centennial. This musical panorama was followed by a special reception tendered by the presidents of the Canadian and Ontario Dental Associations.

Public health-minded dentists were the early birds at the annual Ontario Dental Public Health Council breakfast on Monday morning. The speaker was R. A.

PHOTOS ON FACING PAGE

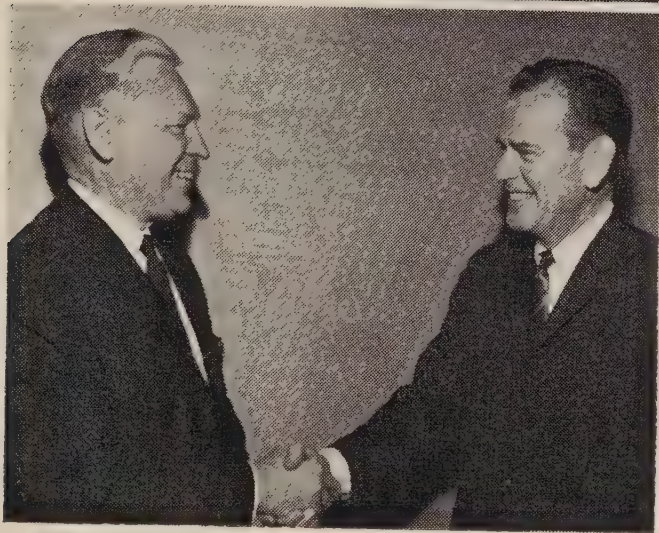
(1) American Dental Association Secretary Harold Hillenbrand (r.) presented an illuminated certificate to retiring ODA President J. B. Taylor to mark the hundredth anniversary of the founding of the Ontario Dental Association. (2) J. P. Coupland (l.), retiring CDA president, and President W. P. Munsie congratulate each other at the installation ceremony. (3) G. E. Decker, Edmonton; A. H. Crowson, Ottawa; H. R. MacLean, Edmonton; W. G. Spence, Toronto; W. G. Bruce, Kincardine, Ontario; and K. F. Pownall, Toronto, listen attentively at a reference committee hearing.

CLICHÉS EN FACE

(1) Harold Hillenbrand, secrétaire de l'American Dental Association, offre un certificat à J. B. Taylor, président sortant de charge de l'ODA. Ce certificat commémore le 100ème anniversaire de fondation de l'Ontario Dental Association. (2) Le président sortant de charge J. P. Coupland et le nouveau président W. P. Munsie se félicitent mutuellement au cours de la cérémonie d'intronisation. (3) G. E. Decker, Edmonton; A. H. Crowson, Ottawa; H. R. MacLean, Edmonton; W. G. Spence, Toronto; W. G. Bruce, Kincardine, Ontario; et K. F. Pownall, Toronto, écoutent attentivement les propos d'un problème discuté lors d'une séance de comité.



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Connor, chief of the Dental Health Division, Department of National Health and Welfare. Later that morning, H. M. Worth of Vancouver delivered an essay on radiographic technique and radiological interpretation. There were also table clinics to round out the morning session. These presented the latest information on paedodontics, orthodontics, prosthodontics, periodontics, restorative dentistry, crown and bridge prosthodontics, surgery, anaesthesia, oral cytology, hospital dentistry and dental public health.

Retiring CDA President J. P. Coupland presided at the Monday luncheon. The special guest speaker for this occasion was A. W. Trueman, dean of the Faculty of Arts at the University of Western Ontario, London. Dr. Trueman discussed "Some Major Influences on the Making of Canada."

D. G. Woodside, Toronto, delivered the George Wellington Grieve Memorial Lecture during the early part of Monday afternoon. Dr. Woodside spoke about "The Future Position of Orthodontics in General Practice."

Later that afternoon, essayist J. I. Ingle of Los Angeles discoursed on periodontic and endodontic considerations in a restorative practice. Scientific motion pictures and nine projected clinics on paedodontics, orthodontics, prosthodontics, endodontics and restorative dentistry completed the afternoon program.

Monday evening was devoted to a gala birthday party honouring the Ontario Dental Association's hundredth anniversary. The festivities included selection and installation of a centennial queen and her court, plus a giant birthday cake.

D. D. Krajicek of Wadsworth, Kansas, was the principal essayist on Tuesday morning. Dr. Krajicek told the audience how he obtains a natural appearance for edentulous patients of long standing. Group clinics on radiology (H. M. Worth), orthodontics (Claude Baril and A. E. Eastwood), restorative dentistry (Frank Martin), restorative materials (R. H. Roydhouse and J. B. Heyde), operative dentistry (R. E. Jordan), anatomy (Harry Sicher), endodontics (Paul Vanek) and anaesthesia (K. R. Callahan) completed the Tuesday morning program.

At the Tuesday luncheon, former CDA Secretary D. W. Gullett delivered a moving address on "Dentistry of Yesterday."

After the lunch, American Dental Association Secretary Harold Hillenbrand led off with a special CDA-sponsored presentation entitled "Day of Challenge: Time of Vision." Scientific motion pictures and group clinics featuring orthodontics (Claude Baril and A. E. Eastwood), restorative materials (W. R. Scott and J. B. Heyde), operative dentistry (R. E. Jordan), endodontics (Paul Vanek), oral pathology (L. W. Burket), and restorative dentistry (Harry Rosen) completed the afternoon session.

A rousing barn raising bee, evocative of mid-nineteenth century community life in Upper Canada, provided a friendly and fitting climax at the end of a busy day.

Wednesday morning began with an essay on diagnosis of common oral lesions. This was delivered by L. W. Burket of Philadelphia. There were also nine group clinics on endodontics (André Schroeder), fluoride compounds (Gordon Nikiforuk), gold inlays (Walter Grenkow), biological aspects of operative dentistry (K. J. Paynter), treatment for handicapped children (W. H. Feasby), complete prosthodontics (A. D. Fee), partial prosthodontics (J. E. Grasso), mandibular surgery (P. T. Smylski) and anaesthesia (K. R. Callahan).

Featured as the speaker at the Wednesday luncheon was Arthur Porter who selected "A Pattern for the Future" as his title. An international authority on computer science, Dr. Porter is head of the Department of Industrial Engineering at the University of Toronto.

Ten unique study club seminars were presented on Wednesday afternoon. The topics ranged from use of pins in restorative dentistry to treatment of the prognathic mandible. A panel on pain control (K. J. Paynter, S. P. Starkman, Benjamin Geneen and C. D. Torneck) and scientific motion pictures completed the scientific program.

Climax of the entire four day meeting was the Centennial Ball on Wednesday night—a star attraction which brought this unique centennial convention to a close.

Le congrès du centenaire rassemble 2,148 dentistes à Toronto

Le congrès conjoint de l'ADC et de l'Association dentaire de l'Ontario, que célébrait le centenaire de la Confédération et celui de l'Association dentaire de l'Ontario, a réuni plus de 3,914 personnes à Toronto, en comptant les dentistes et leurs épouses, les étudiants, les hygiénistes, les assistantes et les exposants. Aux diverses activités du congrès, organisées sur le thème: "Le passé est un prologue," s'ajoutait un programme scientifique exceptionnel comprenant des discussions d'experts, des essais, des conférences cliniques, des cliniques de table, des projections de films, ainsi que des expositions scientifiques et techniques sur les multiples aspects de l'art dentaire.

La réunion annuelle du Conseil des Gouverneurs (10-13 mai) avait précédé le congrès (14-17 mai).

L'investiture du 47ème président de l'Association dentaire canadienne, le docteur W. P. Munsie, de Vancouver, eut lieu le 15 mai. Il succède au docteur J. P. Coupland d'Ottawa. L'ancien président, le docteur H. M. Cline, de Vancouver, dirigeait la cérémonie.

Né à Winnipeg, le docteur Munsie a servi dans la Marine royale canadienne de 1941 à 1945. Il a obtenu son diplôme de docteur en médecine dentaire à l'université de l'Oregon en 1949. Ancien président de la Société dentaire de Vancouver et du district (1956-57), de l'Association dentaire de Colombie britannique (1957-58) et du Collège des chirurgiens dentistes de Colombie britannique (1961-65), le Dr Munsie a été membre du Conseil des Gouverneurs de l'Association dentaire canadienne depuis 1961. Le Dr Munsie a également été fiduciaire fondateur du Fonds canadien pour l'enseignement dentaire, gouverneur honoraire de l'Association canadienne pour l'enfance arriérée,

un des fondateurs de la Simon Fraser University de Vancouver, et membre du Collège américain et du Collège international des chirurgiens dentistes.

Le docteur Henri Brouillet de Montréal a été nommé président-élu de l'Association. Le Dr Brouillet a représenté le Collège des chirurgiens dentistes de la province de Québec au Conseil des Gouverneurs de l'ADC depuis 1966. Il a été deux fois président du CCDPQ (1962-64 et 1964-66).

Les docteurs W. G. Bruce, Kincardine, Ontario, H. R. MacLean, Edmonton, A. L. MacIsaac, Charlottetown, Ile du Prince-Edouard et W. J. Spence, Toronto, ont été nommés membres du Conseil exécutif.

Ont été élus présidents des conseils et comités: W. P. Munsie, Vancouver, Conseil exécutif; J. P. Whyte, Swift Current, Saskatchewan, Conseil de la constitution et des règlements; W. J. Dunn, London, Ontario, Conseil de l'enseignement; L. I. Duffy, Charlottetown, Ile du Prince-Edouard, Conseil de l'éthique professionnelle; J. M. Phillips, Oshawa, Ontario, Conseil de journalisme; J. A. Whyte, Ot-



The Board of Governors held four busy sessions in the Quebec Room of the Royal York Hotel.

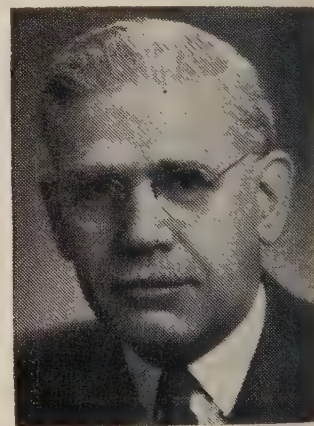
Le Conseil des Gouverneurs a tenu quatre séances bien remplies dans la salle Québec de l'hôtel Royal York.

Retiring CDA President J. P. Coupland congratulates Dr. Hillenbrand after the latter concluded an address describing the American Dental Association's Children's Dental Health Program.



J. P. Coupland, président sortant de charge de l'ADC, offre ses félicitations au Dr Hillenbrand, à la suite de la conférence que celui-ci a prononcée et au cours de laquelle il a décrit le programme de soins dentaires pour enfants de l'American Dental Association.

tawa, Conseil de la législation; K. W. Davey, Toronto, Conseil de l'hygiène publique; R. M. Grainger, Toronto, Conseil de la recherche; Max Nacht, Vancouver, Comité des services auxiliaires; J. G. Ryan, Vancouver, Comité du congrès 1968; P. E. Currie, London, Ontario, Comité des services dentaires; J. Kreutzer, Toronto, Comité de l'immeuble du siège-social; P. T. Smylski, Toronto, Comité des services hospitaliers; Henri Brouillet, Montréal, Comité des nominations; et O. J. Yule, Toronto, Comité des spécialistes et des spécialités.



Gordon B. Watson

Gordon B. Watson, de Toronto, a été nommé membre honoraire de l'Association dentaire canadienne. Membre de la société Smith Rae Greer, avocats, M. Watson est avocat-conseil de l'Association dentaire

canadienne et du Collège royal des chirurgiens dentistes de l'Ontario.

Parmi les invités étrangers de marque, citons W. Roland Cleverley qui représentait la British Dental Association; E. A. Cheney, fiduciaire du 9ème district de l'American Dental Association; Harold Hillenbrand, secrétaire de l'American Dental Association; et Sir John Walsh, doyen de la Faculté de chirurgie dentaire de l'Université d'Otago, Dunedin, Nouvelle-Zélande.

La bonne organisation locale du congrès était due au Comité du congrès présidé par R. G. Ellis.

Décisions du Conseil des Gouverneurs

La séance d'ouverture de la réunion du Conseil des Gouverneurs a été marquée par l'observation d'une minute de silence consacrée à la mémoire des membres de l'Association décédés au cours de l'année écoulée.

Déclarations du président. Le président Coupland a ensuite prononcé un discours. Il a félicité l'Association dentaire de l'Ontario qui célèbre son centenaire et qui est devenue, au mois de mai, le membre corporatif de l'ADC pour l'Ontario.

Il a fait allusion à l'amendement apporté au projet de loi sur l'assurance-maladie du Canada (C-227) à la fin de l'année dernière et il a loué les dentistes de toutes les parties du Canada qui ont informé les membres de la Chambre des Communes et du Sénat sur les éléments critiquables du projet de loi original. "Cette campagne," a dit le Dr Coupland, "a été habilement coordonnée par le secrétaire de l'ADC qui a été magnifiquement soutenu par les membres corporatifs, le Conseil de la législation de l'ADC, les doyens des facultés dentaires ainsi que d'autres groupes et d'autres personnes qu'il serait trop long d'énumérer."

Le président a aussi rappelé à son auditoire le programme à frais partagés du Régime d'assistance du Canada (projet de loi C-207) adopté l'année dernière. Les frais partagés couvrent le coût des soins dentaires, y compris les prothèses, a ob-

servé le président. Attirant l'attention sur les efforts déployés localement pour tirer profit des sommes ainsi accordées, le Dr Coupland a demandé aux membres corporatifs d'informer l'ADC de tous les nouveaux programmes institués en vertu du Régime d'assistance du Canada.

Le docteur Coupland a ensuite conseillé de permettre aux étudiants de devenir membres de l'ADC afin de les encourager à jouer un rôle actif dans les organismes professionnels. "Tous les moyens dont nous disposons devraient être mis en œuvre pour rendre les dentistes conscients de leur responsabilité professionnelle envers la société . . . afin que les intérêts du public et de la profession soient mieux servis," a-t-il déclaré. "Plus tôt cet intérêt sera créé, plus grands seront les services qui en découleront."

Passant aux services assurés par l'Association dentaire canadienne, le président Coupland a fait remarquer que le personnel du siège social est dépassé par les nombreuses demandes qui lui sont adressées de toutes parts. Il a conseillé de procéder à un examen approfondi des buts et des objectifs de l'Association afin d'accorder la priorité aux questions les plus importantes pour les membres de l'ADC. Cela est nécessaire, a-t-il déclaré, jusqu'à ce que nous disposions de plus d'argent pour augmenter le personnel et agrandir les locaux du siège social.

Le Conseil des Gouverneurs a ensuite examiné les rapports de chaque conseil, comité et section de l'Association et a pris les décisions suivantes:

Personnel auxiliaire. Le Conseil a décidé que le rôle de l'hygiéniste dentaire devrait rester défini par la déclaration actuelle de l'Association. Le Conseil a également:

Suggéré que les bureaux provinciaux de réglementation professionnelle prévoient des règlements et que les institutions enseignantes prévoient des cours permettant au personnel auxiliaire d'accomplir toutes les tâches qui correspondent à la définition donnée par l'ADC du rôle du personnel auxiliaire;

Rejeté une motion demandant au Comité des services auxiliaires d'étudier la possibilité de former une auxiliaire dentaire unique capable de remplir les fonctions de l'hygiéniste et de l'assistante;

Approuvé la création d'un bureau national chargé de délivrer le certificat d'assistante dentaire;

Reçu un rapport de la conférence des techniciens de laboratoire dentaire organisée par l'ADC, qui a eu lieu en janvier cette année, et recommandé qu'une autre conférence soit tenue en 1968.

Par ailleurs, le Conseil a autorisé un élargissement du Comité des services auxiliaires et du Comité des services dentaires qui désormais comprendront tous les deux un représentant de chaque membre corporatif. Le Conseil a recommandé à chaque membre corporatif de créer parallèlement des comités des services auxiliaires et des services dentaires, qui pourraient fournir les représentants auprès des deux comités de l'ADC. Le Conseil a aussi demandé au Conseil de l'enseignement d'étudier la possibilité d'instituer des cours conduisant à l'obtention d'un diplôme en hygiène dentaire, dans des établissements de niveau collégial autres que les universités.

Spécialités et sections. Le Conseil a reconnu la Société canadienne des dentistes de l'hygiène publique comme nouvelle section de l'ADC. La SCDHP devient la huitième section de l'ADC. Le Conseil a également:

Prononcé un moratoire sur la reconnaissance de nouvelles sections;

Demandé au Comité des spécialistes et des spécialités d'étudier les règlements de l'association se rapportant aux sections;

Reçu un projet de déclaration sur la reconnaissance de domaines spéciaux dans la pratique dentaire et demandé au Comité des spécialistes et des spécialités d'examiner cette déclaration qui sera soumise au Conseil à une réunion ultérieure.

Par ailleurs, le Conseil a décidé que l'Association ne peut pas orienter les décisions des bureaux provinciaux de réglementation professionnelle. En conséquence, le Conseil a rejeté des propositions voulant que l'Association dentaire canadienne persuade tous les bureaux de réglementation provinciaux de reconnaître les endodontistes et les prosthodontistes comme spécialistes et l'endodontie et la prosthodontie comme des domaines de pratique spéciaux.

Recherche. Le Conseil a approuvé une nouvelle déclaration sur la prévention des dangers liés à l'emploi des appareils de radiographie dentaire. Le Conseil a également:

Renouvelé son appui à la fluoration de l'eau;

Modifié la déclaration de l'Association sur les compléments de fluor dans la prévention des caries dentaires. (La nouvelle déclaration mentionne des appareils de mesure automatiques pour fluorer les services d'eau de consommation);

Demandé au Conseil de la recherche de proposer un moyen de fournir des indications sur la valeur des matériaux, appareils et agents thérapeutiques canadiens offerts aux dentistes;

Ordonné au Conseil de la recherche de développer la déclaration concernant les hydrates de carbone et la carie en insistant sur les mérites des aliments et des boissons non cariogènes;

Mis fin au programme pour fellows et étudiants administré jusqu'à présent par le Conseil de la recherche. Ce programme fonctionnera désormais par l'intermédiaire du Fonds canadien pour l'enseignement dentaire.

Dentisterie préventive. Le Conseil a autorisé le Conseil de l'enseignement à organiser un colloque sur la dentisterie dans la communauté et la société, et a demandé à ce conseil d'organiser un colloque sur la dentisterie préventive. Le Conseil a également:

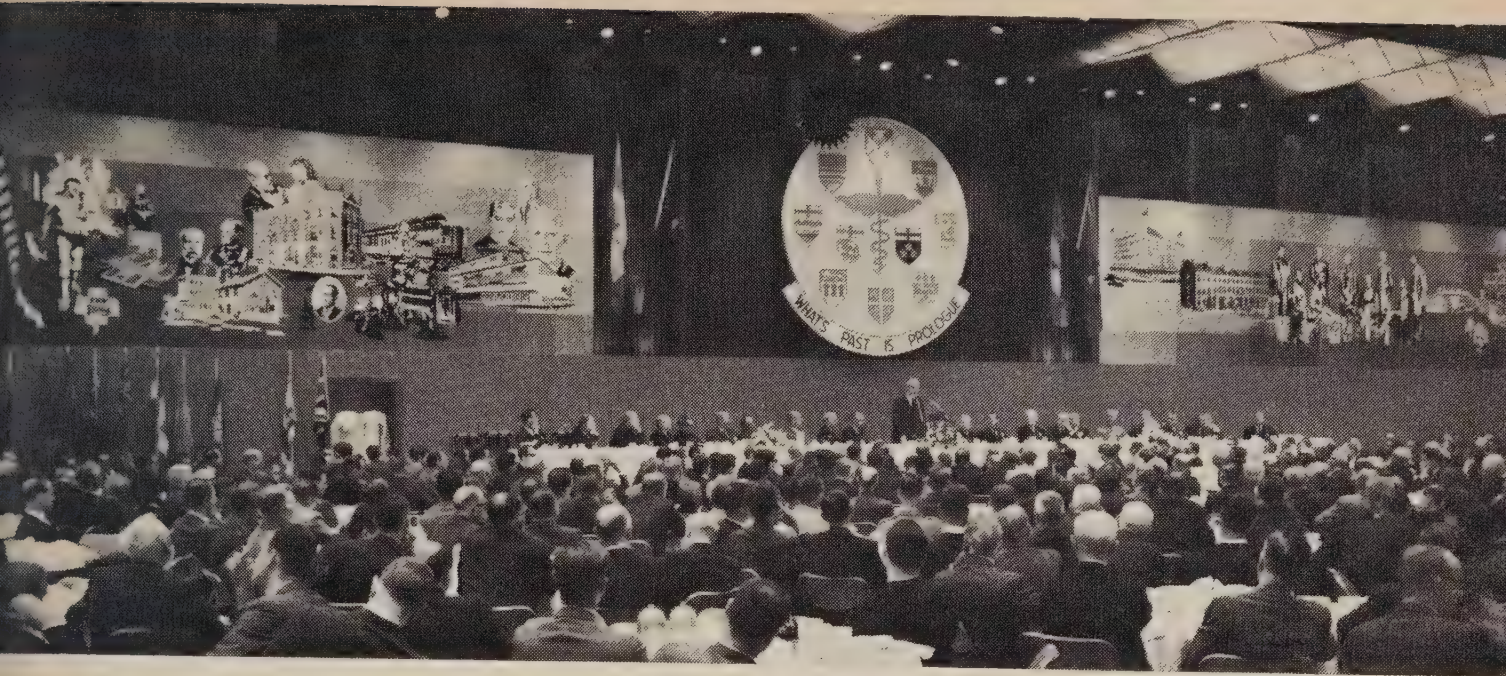
Recommandé que les programmes universitaires insistent davantage sur la prévention dans la pratique dentaire;

Encouragé le développement de cours universitaires et post-universitaires de dentisterie préventive;

Conseillé à l'ADC et aux autres associations dentaires d'inclure des conférences et des cours de dentisterie préventive dans leurs programmes de congrès et d'enseignement.

Le Conseil a également demandé au Conseil de l'hygiène publique d'étudier et de recommander des mesures législatives en faveur de la fluoration.

Congrès futurs. Le Conseil a modifié les dates de congrès nationaux de 1968 et



Sweeping view of the Royal York Hotel's Canadian Room during the Monday May 14 luncheon shows the centennial mural depicting historic events from Canadian dentistry during the past 100 years.

Vue d'ensemble du salon Canadian de l'hôtel Royal York prise au cours du déjeuner du lundi 14 mai. On remarque une murale illustrant les faits saillants de l'histoire de l'art dentaire canadien durant les 100 dernières années.

1970 (24-29 juin 1968; 29 juin-4 juillet 1970). Le Conseil a également:

Accepté l'invitation de l'Association dentaire du comté d'Essex de tenir le congrès national de 1971 à Windsor, Ontario;

Consenti à ce que l'ADC organise indépendamment des congrès nationaux après 1971. Les congrès seront alors préparés par un comité permanent.

Législation. Le Conseil a remercié le Conseil de la législation pour avoir attiré l'attention des membres du Parlement sur les vues des dentistes avant la promulgation de la loi sur l'assurance-maladie du Canada (Bill C-227) en décembre 1966. Le Conseil a aussi demandé au Conseil de la législation de suggérer des moyens d'améliorer la communication entre la profession dentaire d'une part et les législateurs fédéraux d'autre part.

Services dentaires. Le Conseil a autorisé le Comité des services auxiliaires à consulter des conseillers des régimes de soins dentaires en vigueur.

Remarquant que le Comité étudie actuellement les principes de l'assurance pré-payée, le Conseil a demandé que cette

étude (1) rassemble toute la documentation possible sur les régimes d'assurance existants, (2) compare le fonctionnement et l'étendue des régimes existants, et (3) détermine jusqu'à quel point la profession devrait s'occuper de tels plans. Aucune déclaration ne sera publiée sur ce sujet tant que cette étude ne sera pas terminée.

Le Conseil a également demandé au Conseil exécutif d'inviter les membres corporatifs à exprimer leur opinion sur la déclaration actuelle concernant le développement des services dentaires et, le cas échéant, à recommander des modifications de la déclaration.

Enfin, le Conseil a chargé l'Association dentaire canadienne de conseiller au gouvernement fédéral de payer tous les services dentaires en se basant sur les échelles d'honoraires des provinces.

Programme d'hygiène dentaire pour les enfants. Impressionné par l'urgence de la question, le Conseil a demandé au Conseil exécutif de créer en priorité absolue une équipe spéciale pour accélérer la mise au point d'un programme d'hygiène dentaire pour les enfants. Le Conseil a ordonné d'accorder des fonds suffisants pour que

cette équipe spéciale puisse s'assurer le concours d'experts dans les sciences sociales.

Résolutions examinées. Le Conseil a examiné deux résolutions soumises par l'Association dentaire de l'Ontario. La résolution no 1 demandait à l'Association dentaire canadienne d'étudier la constitution actuelle de l'ADC afin de modifier son contenu conformément à la constitution de 1952, en ce qui concerne les pouvoirs et les devoirs du Conseil exécutif. La résolution no 2 demandait que, pour chaque motion, on enregistre le motionnaire, celui qui appuie la motion et la répartition des voix. Les deux résolutions ont été longuement examinées. Etant donné le système de comité de référence établi à la réunion annuelle de 1967, le Conseil a jugé la résolution no 2 irrecevable. Les deux résolutions ont été transmises au Conseil des Gouverneurs de l'Association dentaire de l'Ontario pour examen approfondi.

Divers. Par ailleurs, le Conseil a:

Adopté pour 1968 un budget de \$281,670;

Approuvé la création de sociétés professionnelles assurant des services à un dentiste ou à un groupe de dentistes, pourvu que la majorité des voix appartienne à des dentistes;

Chargé le Conseil exécutif d'indiquer les implications légales et fiscales de la

constitution en corporation des cabinets dentaires;

Conseillé à tous les membres corporatifs de mettre à point ou d'acquérir une assurance collective contre la négligence professionnelle pour leurs membres;

Augmenté la cotisation des membres associés de \$8 à \$10 à compter de 1968;

Autorisé la création d'une nouvelle catégorie de membres de l'ADC pour les étudiants des facultés dentaires canadiennes agréées et pour les dentistes qui poursuivent des études avancées immédiatement après avoir reçu leur diplôme;

Demandé au Conseil exécutif d'étudier la possibilité de créer une division étudiante au sein de l'Association dentaire canadienne;

Consenti à la formation d'un fonds de réserve équivalent à deux fois le budget annuel de l'Association;

Nommé D. W. Gullett, de Toronto, au poste d'archiviste de l'ADC;

Demandé au Conseil exécutif d'étudier la possibilité d'augmenter les services du personnel de l'ADC afin d'aider le Comité national de recrutement;

Reçu un compte-rendu du Fonds canadien pour l'enseignement dentaire (également accepté la démission de W. P. Munsie, de Vancouver, et nommé M. J. Lipkind, de Calgary, fiduciaire de la FCED);

Approuvé des directives révisées pour les services dentaires hospitaliers;

PHOTOS ON FACING PAGE

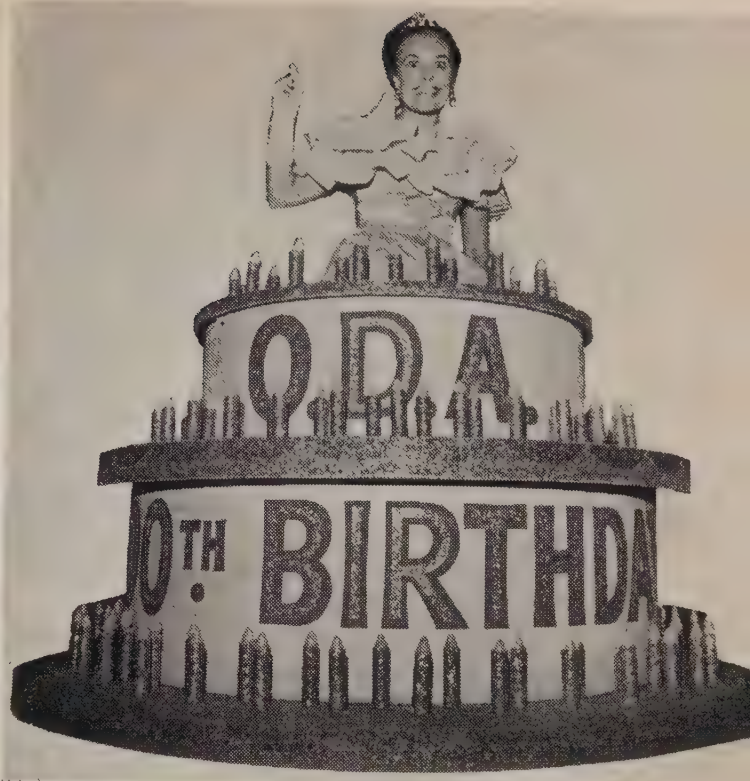
(1) Mrs. R. J. Hall emerges from the Ontario Dental Association's 'birthday cake' at the Monday evening party. (2) The Centennial Queen (l.) and her ladies are Mrs. Z. Tukums, Kitchener, Ontario; Mrs. Noble Hori, Toronto; and Mrs. R. J. Lewis, Etobicoke, Ontario. (3) Gambling casinos replete with fetching dance hall hostesses set the theme for the Monday evening May 14 centennial birthday party. (4) This replica of a dental office was considered completely up-to-date and 'ultra-modern' in 1867.

CLICHÉS EN FACE

(1) Mme R. J. Hall, et le gâteau de fête de l'Ontario Dental Association. (2) La reine du centenaire et les dames de sa cour sont: Mme Z. Tukums, Kitchener, Ontario; Mme Noble Hori, Toronto; et Mme R. J. Lewis, Etobicoke, Ontario. (3) Une atmosphère de casino régnait au cours de la réception du lundi 14 mai qui marquait le centenaire. (4) Maquette d'un cabinet dentaire "ultra-moderne" datant de 1867.



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Autorisé un amendement à la constitution de la Société canadienne de dentisterie pour les enfants, qui permet à l'Académie canadienne de pédodontie d'être représentée au Conseil exécutif national de la SCDE;

Approuvé un amendement de l'article XI, Section 1, des règlements de l'ADC afin d'y inclure des passages sur l'endodontie et la dentisterie restaurative;

Félicité le président et les membres de l'Association dentaire de l'Ontario à l'occasion du centenaire de la fondation de cette organisation;

Remarqué que le Conseil exécutif étudiait les besoins et les services de l'Association pour les cinq années à venir et demandé au Conseil d'examiner les buts et les objectifs de l'Association afin d'accorder la priorité aux services qui seront les plus profitables aux divers membres;

W. J. Spence of Toronto is the newly elected president of the Ontario Dental Association.



W. J. Spence de Toronto, nouveau président de l'Ontario Dental Association.

Chargé le Conseil exécutif d'étudier les moyens d'assurer une meilleure communication entre l'Association dentaire canadienne et l'Association médicale canadienne;

Demandé au Conseil exécutif de déterminer l'interprétation légale des "corporations dentaires statutaires provinciales" mentionnées dans l'Article II, Section 1 des règlements de l'ADC et chargé le Conseil de la constitution et des règlements d'examiner la dite partie des règlements et de fournir une définition qui soit "claire et sans équivoque".

Echos du congrès du centenaire

Le Congrès national s'est ouvert dans la soirée du dimanche 14 mai avec un concert du centenaire qui a été suivi par une réception offerte par les présidents de l'ADC et de l'ADO.

Les dentistes s'intéressant à l'hygiène publique se sont réunis de bonne heure le lundi matin pour le petit déjeuner annuel du Conseil de l'hygiène dentaire publique de l'Ontario. Le conférencier était R. A. Connor, chef de la Division de l'hygiène dentaire au Ministère de la Santé nationale et du Bien-être social. Dans la matinée, H. M. Worth de Vancouver a prononcé une conférence sur la technique radiographique et l'interprétation radiologique. La matinée s'est achevée avec des cliniques de table présentant les dernières connaissances en pédodontie, orthodontie, prothèse, périodontie, dentisterie restaurative, chirurgie, anesthésie, cytologie buccale, dentisterie hospitalière et hygiène dentaire publique.

Le président sortant de charge, J. P. Coupland, a présidé au déjeuner du lundi. Le conférencier invité était le Dr. A. W. Trueman, doyen de la faculté des arts de l'Université Western Ontario, qui a parlé de "quelques influences majeures sur la formation du Canada".

Le Dr D. G. Woodside de Toronto a prononcé la conférence dédiée à la mémoire de George Wellington Grieve au début de l'après-midi. Il a parlé de la place future de l'orthodontie dans la pratique générale.

Par la suite, le Dr J. I. Ingle de Los Angeles a donné une conférence sur les aspects périodontiques et endodontiques du traitement de restauration. L'après-midi s'est terminé par la projection de films et neuf cliniques sur la pédodontie, l'orthodontie, la prosthodontie, l'endodontie et la dentisterie restaurative.

La soirée du lundi a été consacrée à un gala d'anniversaire en l'honneur du centenaire de l'Association dentaire de l'Ontario. On a procédé à l'élection d'une reine du centenaire et de sa cour, ainsi qu'au partage d'un gâteau d'anniversaire géant.

La matinée du mardi a été marquée par la conférence du Dr D. D. Krajicek qui a parlé des problèmes d'esthétique chez les patients qui ont perdu leurs dents depuis longtemps. Le programme de la matinée comprenait en outre des cliniques enregistrées portant sur la radiologie (H. M. Worth), l'orthodontie (Claude Baril et A. E. Eastwood), la dentisterie restaurative (Frank Martin), les matériaux de restauration (R. H. Roydhouse et J. B. Heyde), la dentisterie opératoire (R. E. Jordan), l'anatomie (Harry Sicher), l'endodontie (Paul Vanek) et l'anesthésie (K. R. Callahan).

Au déjeuner du mardi, l'ancien secrétaire de l'ADC, D. W. Gullett, a prononcé un discours émouvant sur "l'art dentaire d'hier".

L'après-midi a débuté par une présentation spéciale du secrétaire de l'American Dental Association, Harold Hillenbrand, organisée par l'ADC et intitulée "Day of Challenge: Time of Vision". Il y eut ensuite des films scientifiques et des cliniques enregistrées portant sur l'orthodontie (Claude Baril et A. E. Eastwood), les matériaux de restauration (W. R. Scott et J. B. Heyde), la dentisterie opératoire

(R. E. Jordan), l'endodontie (Paul Vanek), la pathologie buccale (L. W. Burket) et la dentisterie restaurative (Harry Rosen).

Cette journée chargée a pris fin sur une soirée endiablée du genre "barn raising bee" qui recréait l'atmosphère de la vie villageoise du 19ème siècle dans le Haut-Canada.

Le mercredi matin, le Dr L. W. Burket de Philadelphie a donné une conférence sur le diagnostic des lésions buccales courantes. Il y eut également neuf cliniques enregistrées sur l'endodontie (André Schroeder), les fluorures (Gordon Nikiforuk), les incrustations d'or (Walter Grenkow), les aspects biologiques de la dentisterie opératoire (K. J. Paynter), le traitement des enfants handicapés (W. H. Feasby), les prothèses complètes (A. D. Fee), les prothèses partielles (J. E. Grasso), la chirurgie du maxillaire inférieur (P. T. Smylski) et l'anesthésie (K. R. Callahan).

Au cours du déjeuner du mercredi, on a pu entendre le Dr Arthur Porter présenter "un plan pour l'avenir". Expert de renommée mondiale en informatique, le Dr Porter est chef du département de l'Organisation scientifique du travail à l'Université de Toronto.

L'après-midi fut occupé par dix séminaires dont les sujets divers allaient de l'emploi des pivots en dentisterie restaurative au traitement du prognathisme. Le programme scientifique s'est achevé avec une discussion d'experts (K. J. Paynter, S. P. Starkman, Benjamin Geneen et C. D. Tornek) sur la prévention de la douleur, et avec la présentation de films scientifiques.

Le congrès a pris fin le mercredi soir avec un magnifique bal du centenaire qui clôtura dignement cette mémorable réunion.

L'Association

Les étudiants pourront devenir membres de l'ADC

Lors de sa réunion annuelle à Toronto (10-13 mai), le Conseil des Gouverneurs a approuvé l'admission des étudiants au sein de l'Association dentaire canadienne à compter du 1er janvier 1968. Les droits seront de \$5 par année civile et permettront aux étudiants de recevoir le Journal de l'Association dentaire canadienne, une carte de membre, de participer aux réunions scientifiques et de bénéficier d'une assurance-vie collective organisée par l'Association.

Une brochure, publiée en anglais et en français, et expliquant les avantages de l'appartenance à l'ADC, sera préparée et distribuée à tous les étudiants dentaires du Canada.

Nomination au FCED et à l'ADC

Le docteur J. D. McLean, président du Fonds canadien pour l'enseignement dentaire, et l'ancien président de l'ADC, le docteur J. P. Coupland, ont annoncé la nomination de D. Murray McDonald aux postes de directeur exécutif du FCED et de vérificateur de l'ADC. Monsieur McDonald a pris ses nouvelles fonctions le 1er juin.

Torontois, M. McDonald a été vice-président et trésorier de la Wm. Wrigley Jr. Company Limited; c'est 32 années d'expérience des affaires qu'il mettra au service du Fonds. En 1966, il a été président d'une section de la campagne Toronto United Appeal.

La décision de nommer M. McDonald a été prise lors de la réunion annuelle du

Fonds canadien pour l'enseignement dentaire qui est le seul organisme national s'occupant de recueillir et de répartir les dons destinés à soutenir l'enseignement dentaire. Organisme sans but lucratif, le Fonds existe depuis 1962 et se consacre à la création d'un soutien financier pour les projets nécessaires qui ne sont pas prévus dans le cadre du budget des facultés dentaires. Par suite du manque de professeurs, le FCED s'efforce d'en recruter au moyen de bourses d'enseignement dentaire. A ce jour, le Fonds aide ou a aidé 14 diplômés à entreprendre une carrière dans l'enseignement dentaire. Le FCED reçoit une aide importante de l'Association dentaire canadienne et de l'industrie dentaire.

Canada

Les hygiénistes demandent un grade universitaire

Lors de la 4ème réunion annuelle de leur association, le 16 mai, les hygiénistes dentaires du Canada ont adopté une résolution demandant la création immédiate d'un cours conduisant à l'obtention d'un grade universitaire en hygiène dentaire, avec principales options en enseignement, en administration et en hygiène publique.

Actuellement, les hygiénistes reçoivent un diplôme après un cours de deux ans à l'université. Ces diplômes sont à présent conférés par les universités de Toronto, de l'Alberta, du Manitoba et l'université Dalhousie. Margaret Coleman, présidente du congrès de l'ACHD, a déclaré que la résolution des hygiénistes avait été motivée par l'attitude favorable de W. J. Dunn, doyen de la Faculté de

chirurgie dentaire de l'Université Western Ontario, qui vient d'être élu président du Conseil de l'enseignement de l'Association dentaire canadienne.

La résolution demande que le cours actuel de deux ans soit prolongé pour conduire à l'obtention d'un grade universitaire en hygiène dentaire. Elle demande également la création de cours post-universitaires pour les hygiénistes qui auraient obtenu ce grade et désireraient poursuivre leur formation dans un domaine spécialisé, comme la périodontie, l'orthodontie, la pédodontie et la chirurgie buccale. Des cours de rappel devraient aussi être offerts de temps en temps pour permettre aux diplômées de se tenir au courant des dernières connaissances et des dernières techniques.

La Fraternité Alpha Omega organise une conférence du centenaire à Toronto

L'Alumni Chapter of Alpha Omega Fraternity de Toronto organisera une "Conférence Alpha Omega du Centenaire" du 25 au 27 septembre à l'hôtel King Edward de Toronto. Six conférenciers de renommée internationale y prendront la parole.

LUNDI, 25 SEPTEMBRE

- 9h00 Maury Massler, Université de l'Illinois: L'évolution des idées dans la prévention et le traitement des caries dentaires
- 2h00 William Rakower, Université de New York: Exodontie et petite chirurgie buccale

MARDI, 26 SEPTEMBRE

- 9h00 Irving Glickman, Université Tufts: L'occlusion et la chirurgie périodontaire
- 2h00 Robert Sheldon Stein, Université Tufts: Considérations périodentaires à propos de la prothèse fixe

MERCREDI, 27 SEPTEMBRE

- 9h00 S. I. Silverman, Université de New York: La préparation des tissus dans les prothèses complètes et partielles
- 2h00 Jack Kabcenell, Université de New York: Dynamique et prothèse partielle

Tous les dentistes du Canada seront invités à participer à la conférence. Le nombre de places étant limité à 500 environ, les inscriptions (\$25) seront acceptées dans l'ordre de réception. Les recettes de la conférence seront offertes au Fonds canadien pour l'enseignement dentaire.

Pour tous renseignements, s'adresser à H. J. Levin, President, Alpha Omega Centennial Conference, 2006 Bathurst Street, Toronto 10, Ontario.

Chronique internationale

Réunion de prosthodontistes américains à Toronto

Alors que le congrès canadien du centenaire avait pris fin, un groupe de spécialistes américains s'est réuni à Toronto du 22 au 26 mai pour discuter des greffes cutanées, des articulations artificielles et des implants de silicone, pour la réadaptation fonctionnelle des cancéreux, des accidentés et des enfants atteints de becs de lièvres.

Ces 75 prosthodontistes de l'American Academy of Denture Prosthetics se sont réunis à l'hôtel Park Plaza et à l'Université de Toronto.

Ils ont passé en revue les progrès effectués depuis près d'un demi-siècle dans leur spécialité, qui est passée des "fausses dents" à la reconstruction des visages avec des matériaux complexes et une haute compétence chirurgicale. Par exemple, W. E. Laney, chirurgien buccal de la clinique Mayo, a parlé de l'emploi des greffes de peau pour ancrer les dents artificielles dans les bouches mutilées. John Ross de St. Petersburg (Floride) et Mohammad Mazaheri de Lancaster (Pennsylvanie) ont présenté les dernières connaissances dans le traitement de la fissure de la voûte palatine. E. C. Kelly Geiger de Miami a parlé des progrès effectués dans l'emploi du silicone dans les mâchoires artificielles.

A la Faculté de chirurgie dentaire de l'Université de Toronto, les prosthodontistes ont examiné le fonctionnement de mâchoires artificielles au cours d'une émission de télévision en circuit fermé. Ils ont également discuté de l'orientation que les chimistes, les métallurgistes et les ingénieurs devraient donner à la recherche de nouveaux matériaux dentaires.

Les observations étaient présentées au moyen des techniques les plus modernes. Paul Goldhaber de Boston a employé des films accélérés pour montrer le rôle des cellules dans la formation de l'os et la fixation des tissus à l'os. William Braasch de Minneapolis a discuté de l'emploi d'instruments électroniques pour mesurer les forces appliquées sur les dents. Jean Nadeau de l'Université de Montréal a

passé en revue l'équipement et les techniques nouvelles employés pour traiter les patients confinés chez-eux, les victimes d'accidents et les malades soumis à un traitement anticancéreux.

Le Dr Houde devient boursier de la FDI

Le docteur Maurice Houde, chargé de clinique à la Faculté de Chirurgie dentaire de l'Université de Montréal, a été choisi comme boursier de la Fédération dentaire internationale. Cette bourse lui a été attribuée pour qu'il puisse aider à l'organisation du quatorzième congrès de cette association.

Organismes dentaires

La section canadienne du Collège international des chirurgiens dentistes compte 11 nouveaux membres

Lors de la réunion annuelle de la section canadienne du Collège international des chirurgiens dentistes, qui a eu lieu à Toronto le 13 mai, T. H. Johns de Vancouver a reçu la présidence de cette organisation. Il succède à D. H. Tanner d'Ottawa. Les autres postes ont été attribués pour l'année 1967-68 à J. A. Fortier, de Montréal, président-élu; W. J. Riley, de Winnipeg, vice-président; H. R. Skilling, de Toronto, trésorier; et E. A. White, de Toronto, registraire.

Ont été élus régents: C. M. Whitworth, Vancouver, district 1; R. D. Haryett, Edmonton, district 2; J. P. Whyte, Swift Current, Saskatchewan, district 3; G. A. Brass, Winnipeg, district 4; Murray Purcell, Pembroke, Ontario, district 5; J. A. Sherman, Toronto, régent adjoint, district 5; W. J. Johnston, Montréal, district 6; Conrad Godin, Trois-Rivières, Québec, régent adjoint, district 6; et G. M. Dewis, Halifax, district 7. E. M. Wansbrough, Ottawa, a été nommé rédacteur.

Ont été promus membres du Collège: M. J. Lipkind, Calgary; K. J. Paynter, Saskatoon; J. E. Abra et T. J. Cooke, Winnipeg; W. G. Bruce, Kincardine, Ontario; A. R. Kaukinen, Sudbury, Ontario; C. E. Woods, Ottawa; Murray Cornish,

W. K. Prendergast, W. J. Spence et W. G. Woods, Toronto.

W. G. McIntosh, A. C. Lewis et M. M. E. Bower, tous de Toronto, ont été promus membres honoraires.

Facultés dentaires canadiennes

Augmentation du nombre de places dans les facultés

Les huit facultés dentaires canadiennes peuvent recevoir 375 étudiants dans chacune des quatre années d'étude. Cette légère augmentation par rapport à l'année 1965-66 est due à l'Université Western Ontario, qui a reçu sa première classe de huit étudiants en septembre 1966, et à l'Université de Montréal dont les classes sont passées de 78 à 86 étudiants. Ces faits sont rapportés par le Bureau des recherches économiques de l'ADC.

On peut prévoir le développement à venir d'après les projets des facultés suivantes:

Les classes de l'Université de Colombie britannique passeront de neuf à 40 étudiants;

La nouvelle faculté dentaire de l'Université de Saskatchewan recevra peut-être une première classe en septembre 1968;

On espère qu'une fois terminé, le bâtiment des sciences dentaires de l'Université Western Ontario pourra accueillir 52 étudiants;

L'agrandissement de la faculté dentaire de l'Université Dalhousie devrait être terminé en 1970 et fournir 40 places supplémentaires;

La nouvelle faculté dentaire dont il est question pour l'Université Laval pourrait décerner ses premiers diplômes en 1973 ou 1974;

L'Université de l'Alberta pourra recevoir 30 étudiants de plus lorsque ses travaux d'agrandissement seront terminés en 1972;

A compter de 1975, l'Université du Manitoba espère accueillir 50 étudiants par an;

L'Université McGill espère également agrandir les locaux de sa faculté dentaire, bien qu'aucun plan n'ait encore été arrêté.

Ni l'Université de Montréal ni celle de Toronto ne prévoient augmenter leurs classes. Cependant, la faculté dentaire de Toronto a soumis au recteur de l'université un mémoire soulignant la nécessité d'augmenter le nombre de places dans certains cours. La faculté aimerait tripler son nombre de places actuel et recevoir 150 étudiants à plein temps dans ces cours-là.

Une association des facultés dentaires canadiennes

L'Association des facultés dentaires canadiennes a vu le jour le 22 mars à Washington. La décision de fonder cette association a été prise à la suite de la réunion annuelle de l'Association américaine des facultés dentaires à laquelle assistaient les doyens et les représentants des facultés dentaires canadiennes. La motion visant à la création de cette nouvelle association ayant été adoptée, un projet de constitution fut examiné et adopté en principe.

Le docteur J. W. Neilson, doyen de l'Université du Manitoba, a été choisi comme premier président de cette association. Ont été élus aux autres fonctions, les docteurs: G. J. Parfitt de l'Université de Colombie britannique, vice-président; A. T. Storey de l'Université de Toronto, secrétaire-trésorier; J.-P. Lussier, doyen de l'Université de Montréal et W. J. Dunn, doyen de l'Université Western Ontario, membres du Conseil exécutif.

Le Conseil exécutif doit se réunir au début de l'été pour régler certaines questions relatives à la création de l'association dont la première assemblée annuelle devrait avoir lieu en mars ou avril prochain.

Le Dr Paynter dévoile les projets de la faculté dentaire de Saskatchewan

Le docteur K. J. Paynter, qui deviendra le 1er juillet doyen de la nouvelle faculté dentaire de l'Université de Saskatchewan, espère que la première classe débutant à l'automne 1968 comptera une dizaine d'étudiants. La faculté devrait pouvoir recevoir chaque année 30 étudiants en première année. Selon le Dr Paynter, ce nombre est raisonnable pour une classe et

il devrait correspondre aux besoins de la Saskatchewan.

Interrogé le 13 mars par le *Saskatoon Star Phoenix*, le Dr Paynter a déclaré: "Cette faculté sera unique au Canada, car elle est plus intégrée à la médecine qu'aucune autre faculté dentaire. Aucune autre université ne peut comparer ses installations à l'hôpital sur le campus."

Les études dentaires à la nouvelle faculté comprendront deux années de science, effectuées à la faculté des arts et des sciences, deux années d'études dentaires pré-cliniques, et deux années de formation clinique à l'hôpital, a déclaré le Dr Paynter. Le programme pourra être modifié par la suite, car la faculté de médecine songe à réduire les études pré-médicales de deux ans à un an, afin d'instituer un cours de cinq ans dans la faculté de médecine. Dans ce cas, la faculté dentaire ferait de même. On prévoit de créer un cours pour hygiénistes dentaires deux ans après le début des cours d'art dentaire.

Le docteur Paynter a déclaré que l'une des grandes difficultés auxquelles se heurtait la faculté était le manque de professeurs qualifiés. Aucune nomination n'a encore été faite, mais tout le personnel indispensable devra avoir été choisi au début de l'année prochaine. Nous le recruterons où nous le pourrons, a-t-il dit, c'est-à-dire au Canada, aux Etats-Unis et en Grande-Bretagne.

L'UCB approuve un cours pour hygiénistes

L'Université de Colombie britannique a donné son approbation à un cours pour hygiénistes dentaires qui sera institué à la Faculté de chirurgie dentaire de l'UCB. Les retards du programme de construction de la faculté empêcheront sans doute que le cours débute avant septembre 1968.

Economie

Le secrétaire de l'ADA prédit une augmentation spectaculaire de la demande en soins dentaires

Avec la mise en œuvre du programme de santé dentaire de l'American Dental Association pour les enfants, des centaines

de milliers d'enfants américains économiquement faibles, qui n'ont jamais consulté de dentiste, recevront enfin des soins dentaires.

Harold Hillenbrand, secrétaire de l'American Dental Association, a déclaré le 15 mai lors du congrès de l'ADC, que depuis 25 ans on assistait à un effort national visant à améliorer à court terme la santé de l'Amérique. Cette attitude se reflète dans la législation sans précédent adoptée par le 89ème congrès américain en 1965. Cette année-là, l'ADA a également entrepris des démarches qui ont abouti au programme de santé dentaire pour les enfants, adopté en novembre dernier.

L'expansion constante de la population et des revenus, ainsi que le développement de l'assurance dentaire exerceront un effet considérable sur la demande de soins dentaires, a-t-il expliqué.

Il a fait remarquer que, selon le US Bureau of Census, la population des Etats-Unis atteindra 223 millions en 1975, soit une augmentation de 15 pour cent sur le chiffre actuel.

En outre, on s'attend à ce que l'accroissement du revenu familial entraîne à lui seul une augmentation de 25 pour cent de la demande en soins dentaires d'ici 1975. Le développement des régimes d'assurance dentaire constitue également un facteur important, a-t-il déclaré.

"Les principales catégories de régimes privés aux Etats-Unis sont celles des compagnies d'assurance commerciale et celles des sociétés de soins dentaires. Les régimes de ces dernières sont non lucratifs et organisés par les sociétés dentaires des états. Des sociétés de soins dentaires ont été fondées dans 30 états et 16 d'entre elles fonctionnent actuellement."

Le docteur Hillenbrand, qui depuis 1946 est secrétaire de l'American Dental Association qui compte 106,000 membres, a déclaré que les régimes d'assurance dentaire commerciaux et non lucratifs couvrent actuellement plus de trois millions de personnes. On estime que 50 millions de personnes seront assurées d'ici 10 ans.

Il a prédit que c'est dans le secteur des soins pour enfants que la demande s'accroîtra le plus, car le programme de l'ADA s'étendra finalement à tous les enfants des Etats-Unis.

Le nombre de dentistes, a-t-il dit, n'augmentera pas aussi vite que celui des enfants. Ce problème pourrait être en partie résolu en faisant appel aux dentistes américains (23 pour cent) qui déclarent qu'ils pourraient recevoir plus de patients.

Le Dr Hillenbrand a fait remarquer que le congrès américain tient actuellement des audiences au sujet d'un projet du gouvernement qui prévoit un programme pilote de \$5 millions pour les enfants. Selon ce projet, 10 programmes couvrant environ 100,000 écoliers économiquement faibles de 1ère année, seraient mis en œuvre au cours de l'année fiscale 1968.

De telles études, a-t-il fait remarquer, devraient conduire à une évaluation réaliste des effectifs, de la répartition des dentistes et du personnel dentaire auxiliaire, ainsi que du besoin d'administrateurs dentaires expérimentés.

Les techniques préventives actuelles pourraient influencer sur la demande de soins futurs. Les mesures qui préviennent la carie dentaire, y compris la fluoruration, peuvent en réalité augmenter la demande future en soins dentaires. Il y aura une diminution de la perte de dents et celles qui seront perdues le seront à un âge plus avancé. Un rythme plus lent d'altération signifiera probablement un plus grand nombre de couronnes, de ponts et de prothèses partielles, ainsi que des traitements périodontiques plus nombreux. Ce sont des opérations qui demandent beaucoup de temps au dentiste. Le Dr Hillenbrand a souligné que les mesures préventives assurent toutefois une meilleure santé dentaire chez la population.

Ottawa rassemble des informations sur les soins dentaires

Les opinions qui ne s'appuient pas sur des faits n'ont qu'une valeur limitée, a déclaré R. A. Connor, chef de la Division de l'hygiène dentaire du Ministère de la Santé nationale et du Bien-être social lors du congrès de Toronto, le 14 mai. C'est pourquoi cette division et les comités qui y sont associés rassemblent des renseignements sur divers aspects des soins dentaires:

Quelle est la santé de la population canadienne (adultes—enfants)?

Quelle quantité de soins et quels soins les gens qui peuvent se les payer et qui sont considérés par leur dentiste comme une clientèle régulière reçoivent-ils?

De quelle quantité de soins dentaires les jeunes adultes qui s'engagent dans les forces armées ont-ils besoin?

De quelle quantité de soins d'entretien ont-ils besoin?

Combien de temps faut-il accorder aux traitements d'attaque et d'entretien des enfants d'âge pré-scolaire et du niveau élémentaire qui commencent des programmes de soins à des âges différents? Quelles seraient les conséquences permanentes si l'on retardait de quelques années le début de ces programmes?

Quelle proportion de Canadiens âgés de 15 ans et plus ont consulté un dentiste au cours des derniers 12 mois?

Quelle proportion d'enfants canadiens âgés de moins de 14 ans ont consulté un dentiste au cours des derniers 12 mois?

Combien de programmes dentaires assurent des soins à certains groupes distincts de Canadiens?

Qui et combien de personnes ont droit aux traitements?

Combien de celles-ci reçoivent des soins? Quels soins et quelle quantité de soins reçoivent-elles?

Comment ces services sont-ils financés?

Comment le dentiste qui dispense les soins est-il rémunéré?

Ces recherches sont effectuées en collaboration avec des dentistes en exercice, les divisions provinciales de l'hygiène dentaire, les services des facultés et des hôpitaux, les membres des facultés dentaires, le Corps dentaire royal canadien, la Division des recherches et des statistiques du Ministère de la Santé nationale et du Bien-être social, ainsi que le Bureau fédéral de la statistique.

Le juge Hall fustige l'insuffisance de soins dentaires

Le juge Emmett M. Hall a déclaré le 26 avril aux délégués du congrès des Associations de l'hygiène publique du Canada et de l'Ontario que les Canadiens sont moins bien fournis en soins dentaires qu'en soins médicaux. Il a déclaré que l'on n'avait pas fait grand chose pour

remédier à la situation, car aucune pression n'avait été exercée sur le gouvernement.

Selon le président de la Commission royale d'enquête sur les services de santé, la pénurie est plus grande chez les dentistes que dans toute autre profession de santé. Hormis les subventions du Fonds de ressources pour la santé à de nouvelles facultés dentaires, on n'a pas fait grand chose. Il a déclaré que les églises, les syndicats, les fermiers et les autres organisations nationales usent de leur influence pour améliorer la situation dans le domaine médical, tandis que cette action fait défaut dans le domaine dentaire.

Le juge Hall voudrait voir plus de femmes au sein de la profession dentaire. Il a aussi renouvelé la proposition formulée par sa commission, visant à former des auxiliaires dentaires chargées du traitement des dents temporaires, y compris les obturations, chez les enfants. Ces auxiliaires seraient formées en deux ans dans des instituts polytechniques ou des collèges locaux, mais non dans des universités, après la 12^{ème} année. Envoyer une jeune fille à l'université pendant deux ans pour en faire une hygiéniste dentaire qui ne fera que des tâches simples est une perte de temps, lorsque celle-ci peut être entraînée en deux ans à effectuer des obturations et à se servir du matériel ordinaire tout aussi bien qu'un homme, a-t-il déclaré.

L'Association de l'Ontario demande plus d'avantages pour les bénéficiaires de l'assistance sociale

L'Association dentaire de l'Ontario a soumis au Comité provincial des arts de la santé un mémoire demandant que les avantages accordés aux bénéficiaires du bien-être social soient augmentés de façon à comprendre tous les soins dentaires, à l'exception des services secondaires de nature esthétique. Le mémoire conseillait également d'étendre les bénéfices de l'assistance publique aux aveugles, aux veuves, aux invalides et à ceux qui reçoivent une pension de vieillesse. Les soins dentaires de base sont actuellement accordés aux bénéficiaires du Mothers' and Dependent Fathers' Allowances Act.

Le NPD de l'Ontario promet le gratuité des soins dentaires pour les enfants

“Un gouvernement du Nouveau parti démocratique agirait immédiatement pour assurer la gratuité des soins dentaires à tous les enfants.” Telle est la résolution que vient d'adopter le Nouveau parti démocratique de l'Ontario.

Cette résolution, inscrite au programme du parti pour la prochaine élection provinciale, déclare qu'il existe un manque de dentistes général en Ontario. Un gouvernement du NPD accorderait donc la priorité à la création de nouvelles facultés dentaires et à l'augmentation du nombre de places dans les écoles existantes. La résolution promet aussi des avantages aux dentistes qui s'établiraient dans les petites localités et des cliniques mobiles pour les régions éloignées du nord de l'Ontario.

Les syndicats des professionnels du Québec se préparent à l'assurance obligatoire

Un groupe de six syndicats du Québec représentant diverses professions de santé a demandé l'intégration complète de l'équipe de la santé en prévision de l'assurance-maladie.

Selon la *Gazette* de Montréal du 14 avril, les syndicats ont remis à la Commission Castonguay (voir *Journal de mars*, page 174) un mémoire de 186 pages contenant 60 recommandations, et rédigé conjointement par les associations représentant les médecins, les dentistes, les opticiens, les optométristes et les pharmaciens.

L'une des principales recommandations du mémoire concerne la création d'une commission de l'assurance-maladie qui serait responsable devant le ministre provincial de la santé et administrerait tout le programme d'assurance. La commission comprendrait sept membres: un représentant des hôpitaux, deux représentants des professions de santé et quatre du gouvernement. Elle disposerait de sous-comités s'occupant des diverses branches de la santé: hôpitaux, médecins, dentistes, pharmaciens, optométristes et opticiens.

Le mémoire recommande également: la fluoruration obligatoire de l'eau, à un coût annuel ne dépassant pas \$600,000; la fon-

dation d'une faculté à l'Université Laval et la formation d'hygiénistes ou d'auxiliaires dentaires afin d'augmenter la capacité de traitement des dentistes.

Le Collège du Québec conseille de subventionner la fluoruration

Le Collège des chirurgiens-dentistes de la province de Québec a présenté à la Commission Castonguay un mémoire demandant au gouvernement d'accorder des subventions aux municipalités qui s'engagent à adopter la fluoruration des eaux. Ce serait là la première étape d'un programme d'hygiène dentaire provincial.

La deuxième étape consisterait à assurer la gratuité des soins dentaires aux enfants des assistés sociaux, puis à toutes les personnes (environ 340.000) qui reçoivent l'assistance du ministère provincial de la Famille et du Bien-être. Le CCDPQ, demandant que, dans le régime d'assurance-maladie, les dentistes soient placés sur un pied d'égalité avec les médecins, déclare que dans sa dernière étape, le programme d'assurance dentaire devrait couvrir l'ensemble de la population, en commençant par les enfants âgés de trois à six ans.

Le Collège demande également l'agrandissement de la Faculté de chirurgie dentaire de McGill et la fondation immédiate d'une faculté dentaire à l'Université Laval de Québec.

Un comité de l'Alberta demande des hygiénistes pour un programme dentaire préventif

Un Comité spécial des Services de santé préventifs a demandé un vaste programme de formation d'hygiénistes dentaires afin d'assurer dans toute la province de l'Alberta des services d'hygiène dentaire publique suffisants. Le rapport du comité, qui vient d'être déposé au parlement provincial, recommande également:

Des locaux dentaires dans certaines écoles des régions où les services dentaires sont insuffisants;

Des installations pour la chirurgie dentaire dans les hôpitaux de ces régions;

L'emploi temporaire d'une équipe dentaire itinérante dans les régions où il est

difficile d'obtenir des soins dentaires;

Des cliniques mobiles desservant les régions où les cabinets dentaires ne sont pas assez nombreux.

Fluoration

Les nouveaux composés de fluor seront "prometteurs"

Gordon Nikiforuk, président de la Division de biologie buccale et professeur de pédodontie à l'Université de Californie, a déclaré le 17 mai à Toronto que la fluoration demeure la découverte la plus extraordinaire qui ait été faite dans la prévention des caries dentaires depuis les débuts de l'art dentaire.

L'ancien directeur du service dentaire de l'Hospital for Sick Children est retourné à Toronto pour prendre la parole au congrès du centenaire de l'ADC et de l'ADO. Donnant une évaluation critique du fluor, le Dr Nikiforuk a déclaré que ce produit prévenait actuellement deux caries sur trois chez les enfants. On peut s'attendre à ce que des composés de fluor encore plus efficaces soient découverts; la fluoration aurait alors, pense-t-il, une efficacité de 90 pour cent et les caries dentaires cesseraient d'être un problème d'hygiène publique d'ici 10 ans.

Il a mentionné les observations suivantes:

La teneur en fluor augmente avec l'âge et la maturité des dents;

Le fluor a tendance à s'accumuler dans les fissures de surface près du composant organique de l'émail;

L'apport pré-natal de fluor n'a qu'un effet négligeable sur la résistance à la carie des dents temporaires.

Jusqu'à l'âge de 12 ans, les enfants devraient tous absorber du fluor par l'eau de consommation ou sous forme de comprimés, a-t-il déclaré. A cela devraient s'ajouter des applications topiques sous forme de gelées ou de solutions comme le phospho-fluorure acidulé. Les patients atteints de caries rampantes devraient se rincer la bouche ou se brosser les dents à l'aide de solutions aqueuses de fluorure de sodium (0.1 gr. pour 100 ml. d'eau).

Les fluorures jouent deux rôles essen-

tiels, a-t-il déclaré. Ils servent de catalyseur dans la formation de composés de sodium plus stables dans les dents. On a aussi démontré qu'ils tendent à prévenir l'ostéoporose chez les personnes âgées.

Il a estimé qu'actuellement, seule une personne sur quatre en Amérique du Nord est protégée par des services d'eau municipaux fluorés. Les dentistes doivent augmenter cette protection à l'aide d'applications topiques de fluor. Il a fait remarquer que l'usage de dentifrices au fluorure stanneux ou d'une pâte prophylactique au fluor assure un léger avantage supplémentaire.

Le Premier Ministre Bennett appuie la fluoration

D'après le *Victoria Times* du 22 mars, le Premier Ministre de la Colombie britannique, monsieur W. A. C. Bennett, s'est déclaré en faveur de la fluoration. Prenant position pour la première fois sur cette question, il a déclaré à la Chambre qu'il appuie fortement la fluoration et qu'il recommanderait que la question soit soumise à un comité parlementaire lors de la prochaine session. Bien que le Premier Ministre soit en faveur de la majorité de 60 pour cent, pour faire adopter la mesure, il a conseillé au Ministère de l'Education de donner plus d'information sur la fluoration. Il a déclaré que les campagnes d'information étaient essentielles pour que le public accepte la fluoration, et il a fait remarquer que sa propre ville de Kelowna l'avait adoptée avec une majorité de 85 pour cent à la suite d'une campagne d'information soutenue.

Injonction contre la fluoration à Charlottetown

Une injonction temporaire empêchant la fluoration du service d'eau de Charlottetown jusqu'à ce qu'un tribunal entende une cause relative au référendum de février, a été accordée le 28 mars par le juge R. R. Bell de la Cour Suprême. Les résultats du référendum ont été de 1,139 voix en faveur de la fluoration contre 1,002.

L'injonction a été accordée à la condition que le demandeur, Cyril F. Campbell, poursuive son instance dans un délai normal selon les décisions du tribunal et sans retard.

Fluoration obligatoire en Australie-Occidentale

Le parlement de l'état d'Australie-Occidentale vient de voter une loi rendant obligatoire la fluoration de tous les services d'eau. Selon les informations envoyées de West Perth à l'ADC, la loi confierait au ministre de la santé la responsabilité d'appliquer cette mesure.

L'Australie-Occidentale devient le troisième état à approuver la fluoration obligatoire, avec le Connecticut et l'Irlande.

Hygiène publique

Une nouvelle méthode d'enquête dentaire

Une nouvelle méthode pour effectuer les enquêtes d'hygiène dentaire publique a été présentée au congrès des Associations de l'hygiène publique du Canada et de l'Ontario, qui s'est tenu à Ottawa le 25 avril. R. M. Grainger, président de la Division de la recherche dentaire à l'Université de Toronto, W. C. King, directeur des Services dentaires de Nouvelle-Ecosse, et le major J. V. P. Chatwin, officier de l'hygiène dentaire publique du Ministère de la Défense Nationale, ont présenté la nouvelle méthode d'enquête ainsi qu'un article intitulé "A National and International Evaluation of Dental Health—a Report on Field Trials of a Simplified National System."

Recherches

Un nouveau pansement buccal prometteur

Deux dentistes de l'Université du Minnesota ont fait l'essai d'un nouveau pansement buccal qui adhère bien aux

muqueuses mouillées et assure une protection efficace pendant au moins huit heures. Le nouveau produit — Squibb Intra-oral Bandage — a été mis à l'épreuve chez 104 patients, sur des restaurations, des petites plaies chirurgicales et des lésions de la muqueuse buccale. Lorsque le pansement fut appliqué sur des plaies ou des lésions, les patients ressentirent en général un soulagement de la douleur et du malaise, et la guérison se fit normalement. Lorsqu'il fut appliqué sur des restaurations, celles-ci durcirent sans changements dimensionnels et conservèrent un poli lustré.

Le pansement se présente sous la forme d'une pellicule inodore d'environ 4x6x1/8 pouces placée entre une base de polyéthylène et un papier amovible protégeant la surface adhésive. Il est composé de gélatine, de pectine, de carboxyméthylcellulose sodique et de polyisobutylène. Il adhère bien aux surfaces mouillées grâce à ses propriétés hydrophiles. Le pansement doit être appliqué à la région atteinte et fermement maintenu en place pendant une minute environ pour le faire adhérer. L'adhérence moyenne la plus longue — 18 heures — fut observée dans la région buccale ou labiale, et la plus courte — 10 heures — dans la région palatolinguale. Le pansement demeura en place pendant 13 heures ou plus dans plus de 70 pour cent des cas, lorsqu'il fut appliqué sur des extractions. Appliqué sur des restaurations, l'adhérence fut aussi longue dans 40 pour cent des cas environ. Le pansement fut également employé dans des cas de gingivectomie, de gingivoplastie, de blessure causée par des prothèses, d'ulcération aphteuse, d'irritation de la gencive et d'autres affections buccales. Le pansement protège la plaie, l'alvéole ou la lésion jusqu'à ce qu'il se dissolve lentement, ou soit enlevé par le patient.

Palmarès

Les prix du concours du Mémorial de guerre de l'Association dentaire canadienne pour 1967 ont été attribués à **Marcel Beaulieu** de l'Université de Montréal (1er prix) et à **Judith A. Pick** de l'Université de Toronto (2ème prix).

The Association

Offer Student Membership in CDA

At its annual meeting in Toronto May 10-13, the Board of Governors approved the establishment of a student membership category in the Canadian Dental Association effective January 1, 1968. The dues of \$5 per calendar year will entitle members to receive the *Journal of the Canadian Dental Association*, a membership card, admittance to scientific sessions and to participate in a special group life insurance program sponsored by the Association.

A pamphlet, printed in English and in French, describing student membership in the CDA, will be prepared and distributed to all undergraduate dental students in Canada.

Another Deficit Budget for 1968

The Board of Governors has budgeted for expenditures totalling \$281,670 in 1968. To achieve this figure the Board again had to pare proposed expenditures to an absolute minimum, thereby curtailing several worthy projects for lack of sufficient funds. Despite these economies, anticipated income of \$279,100 will leave the fifth consecutive revenue-expenditure gap in 1968—this time amounting to \$2,570. Furthermore, there is no budgetary provision for television filmlets, a salary for an additional half-time employee to serve the National Recruitment Committee, consultants for the Dental Services Committee, the National Certification Board for Dental Assistants, and the task force for the children's dental health pro-

gram—proposals that were recommended to and approved by the Board.

In his report on May 13, CDA Treasurer G. M. Dewis pointed out that \$25,000 had to be withdrawn from the Association's reserve fund to meet operating expenses last year. At \$217,241, the reserve fund is equivalent to less than the Association's annual budget (the Board recommended building a reserve equivalent to twice the annual budget) and stands much below the recognized level for an association like the CDA.

Canada and the Provinces

Royal College of Dentists to Extend Fellowship Examinations to Non-specialty Areas

The Royal College of Dentists of Canada will establish a mechanism for extending its fellowship examinations to dentists who have completed advanced formal education in areas not recognized as specialties by the Canadian Dental Association. Authority for the move is contained in Section 3d of the Royal College of Dentists Act (S-44) which permits the College "to provide for the recognition and designation of dentists who possess special qualifications in areas not recognized as specialties." Short refresher courses, preceptorships, and rotating or mixed hospital internships will not be recognized by the College as being equivalent to any part of the requirements for advanced formal education.

At the request of some provincial licensing boards the Royal College is also examining possible use of its Part I examination as a criterion for specialty certification in specific provinces. Acting as an agent of the affected licensing boards, the College would forward examination results for consideration and disposition by the provincial bodies.

To improve communication between itself and the Canadian Dental Association, the Royal College and the CDA Committee on Specialists and Specialization have agreed to exchange representatives. The Royal College will also present an infor-

mational statement at future annual meetings of the CDA Board of Governors.

To implement these actions the Council of the Royal College passed the following resolutions on May 13:

1. That the Royal College of Dentists of Canada declares itself willing to assist the provinces in the licensing of dental specialists, and that, in good faith, it asks that provincial corporate licensing bodies consider the acceptance of the results of the Part I examination of this college as the criterion for certification in each specific province. Furthermore, that since this Royal College accepts the areas presently designated by the Canadian Dental Association as specialties in dentistry, that it requests each provincial body to again consider this issue with a view to standardization of specialties across Canada.

2. That the Royal College of Dentists of Canada recognize the category outlined in Section 3d of the act (Bill S-44) and, accordingly, provide examinations, both Part I and Part II, for recognition and designation of dentists who possess special qualifications in areas not recognized as specialties. It is further moved that the Committee on Constitution and By-laws amend the by-laws to make this possible.

3. That liaison be established between the Royal College and the Committee on Specialists and Specialization of the Canadian Dental Association by means of interlocking representation.

Hygienists Press for Degree Courses

Canada's dental hygienists will ask universities to establish a degree course in their profession.

Currently qualified after a two year diploma course following senior matriculation, the dental hygienists moved a resolution at the fourth annual meeting of the Canadian Dental Hygienists Association May 16 asking "immediate commencement of a degree course in dental hygiene with majors offered in education, administration, and public health."

Diploma courses for dental hygienists are now provided at Toronto, Alberta, Manitoba and Dalhousie Universities. Margaret Coleman, the CDHA convention chairman, said the hygienists' resolution was sparked by the interest of W. J. Dunn, dean of the Faculty of Dentistry at the University of Western Ontario and newly elected chairman of the Canadian

Dental Association's Council on Education.

Their resolution asks that the current two year diploma course be continued "as a component of any degree in dental hygiene." They also asked that "post-graduate certificate courses be offered after completion of the basic course for hygienists wishing further training in such specialized fields as periodontics, orthodontics, paedodontics and oral surgery and that short refresher courses be offered from time to time to keep graduates up to date on the new developments and techniques."

International Items

US Prothodontists Hold Busy Session in Toronto

As Canadian dentists concluded the CDA-ODA centennial convention a group of American specialists arrived in Toronto, May 22-26, to discuss such aids as skin transplants, man-made joints and silicone jaw structures in the rehabilitation of cancer patients, accident victims and cleft palate children.

The group—75 prosthodontists, members of the American Academy of Denture Prosthetics—met at the Park Plaza Hotel and University of Toronto.

They reviewed nearly a half century of developments in their own field which has advanced from 'false teeth' to the rebuilding of faces with sophisticated materials and highly specialized surgical skill. W. E. Laney, Mayo Clinic oral surgeon, for example, reported on skin transplants to anchor artificial teeth in mutilated mouths. John Ross of St. Petersburg, Florida, and Mohammad Mazaheri of Lancaster, Pennsylvania, described recent advances in cleft palate treatment. E. C. Kelly Geiger of Miami reported progress in the use of silicone to form artificial jaws.

At the University of Toronto Faculty of Dentistry, the prosthodontists watched the functioning of man-made jaws on a closed-circuit television screen. A work-



Newly inducted fellows of the Canadian Section, International College of Dentists, are (l. to r.): J. E. Abra, Winnipeg; W. G. Bruce, Kincardine, Ontario; T. J. Cooke, Winnipeg; Murray Cornish, Toronto; A. R. Kaukinen, Sudbury, Ontario; M. J. Lipkind, Calgary; K. J. Paynter, Saskatoon, Saskatchewan; W. K. Prendergast, Toronto; W. J. Spence, Toronto; C. E. Woods, Ottawa; and W. G. Woods, Toronto.

shop group also set new guidelines for chemists, metallurgists and engineers to develop new materials for dental use.

The prosthodontists used advanced techniques to demonstrate new findings. Paul Goldhaber of Boston employed time-lapse cinematography to show how cells act in bone formation and in anchoring tissue to bone. William Braasch of Minneapolis demonstrated the use of electronic equipment to measure stress on teeth. Jean Nadeau of the Université de Montréal reviewed new techniques and equipment for serving home-bound patients, accident victims and patients undergoing cancer therapy.

Dental Organizations

International College of Dentists Canadian Section Gains 11 New Fellows

T. H. Johns of Vancouver, British Columbia, took over the presidency of the Canadian Section of the International College of Dentists when that organization held its annual meeting in Toronto May 13. He succeeds D. H. Tanner of Ottawa. Other officers for 1967-68 are J. A. Fortier, Montreal, president-elect; W. J. Riley, Winnipeg, vice-president; H. R. Skilling, Toronto, treasurer; and E. A. White, Toronto, registrar.

Elected as regents were C. M. Whitworth, Vancouver, District 1; R. D. Haryett, Edmonton, District 2; J. P. Whyte, Swift Current, Saskatchewan, District 3; G. A. Brass, Winnipeg, District 4; Murray Purcell, Pembroke, Ontario, District 5; J. A. Sherman, Toronto, deputy regent, District 5; W. J. Johnston, Montreal, District 6; Conrad Godin, Trois Rivières, P. Quebec, deputy regent, District 6; and G. M. Dewis, Halifax, District 7. E. M. Wansbrough of Ottawa was named editor.

Inducted as fellows of the College were M. J. Lipkind, Calgary; K. J. Paynter, Saskatoon; J. E. Abra and T. J. Cooke, Winnipeg; W. G. Bruce, Kincardine, Ontario; A. R. Kaukinen, Sudbury, Ontario; C. E. Woods, Ottawa; and Murray Cornish, W. K. Prendergast, W. J. Spence and W. G. Woods, Toronto.

W. G. McIntosh, A. C. Lewis and Mr. M. E. Bower, all of Toronto, were inducted as honorary fellows.

Dr. Swanson is President of BC Assn.



A. E. Swanson

Vancouver oral surgeon A. E. Swanson was installed as president of the British Columbia Dental Association on May 27 during that organization's annual convention in Vancouver. He succeeds Sheppard Margolese, also of Vancouver. Named with Dr. Swanson were J. F. Reid, North Vancouver, president-elect; J. N. Nasedkin, Vancouver, secretary; and L. K. Jinks, Vancouver, treasurer.

Directors of the association are E. R. Eburne, Vancouver; W. V. Olsen, Vernon; J. F. F. Mykietyn, Trail; J. H. Bridges, South Burnaby; R. M. Carmichael, Powell River; T. A. Cacchioni, Vancouver; E. I. Slakov, Vancouver; J. H. Kovits, Chilliwack, D. O. Braden, Victoria; and S. Fedoruk, Fort St. John.

BC College Elects Council

At the recent election held by the College of Dental Surgeons of British Columbia the following were named members of the Council: R. L. Horne, Victoria, and E. A. Lustig, Nanaimo, District No. 1; R. W. Davis, North Burnaby, District No. 2; G. F. Copithorne, North Vancouver, and C. W. Gardner, R. K. Lindsay and D. J. Yeo, Vancouver, District No. 3; L. E. English, Kamloops, District No. 4; and W. N. Fraser, Creston, District No. 5.

The new council will take office on July 17 for a tenure of two years.

Dr. Tully Heads Vancouver Society

R. C. Tully took over the presidency of the Vancouver and District Dental Society when that organization held its election recently. He succeeds S. R. Moscovich. President-elect of the Vancouver society is F. A. Mitchell. A. W. M. Robertson is secretary. J. E. G. Harrison, J. L. Hornibrook, J. S. Craib and J. N. Nasedkin were elected directors.

Canadian Dental Schools

Miss Robinson Named Director of UBC Dental Hygiene Course

Margaret M. E. Robinson has been appointed supervisor of the new program to train hygienists in the Faculty of Dentistry at the University of British Columbia. Miss Robinson has been appointed assistant professor in the faculty's department of public and community dental health where the program will be carried on beginning September 1968.

A native of Winnipeg, Miss Robinson is presently completing graduate studies in dental hygiene administration at the University of Iowa. She holds the degree of bachelor of science in public health dental hygiene from the University of Washington and was assistant professor of dental hygiene at the University of Oregon Dental School from 1961 to 1965.

Royal Canadian Dental Corps

Management Workshop

Nineteen officers from larger RCDC clinics across Canada attended a clinic management workshop at the Royal Canadian Dental Corps School, Canadian Forces Base Borden May 30-June 1. The aim of the workshop was to define problem areas in the field of dental clinic management and make recommendations.

Major Guevremont Retires

Maj. P. H. Guevremont retired recently from the Royal Canadian Dental Corps after 19 years of service. Maj. Guevremont earned a diploma in dental public health while serving with the RCDC and has been very active in this field in No. 15 Dental Unit, Montreal.

Promotions

Canadian Forces Headquarters recently announced the promotions of the following officers to the rank of major: **J. P. A. Legendre, D. R. O'Hara** and **C. M. Mason**. Maj. Legendre will move to No. 35 Field Dental Unit with the Air Division overseas. Maj. Mason and Maj. O'Hara are presently serving with the Brigade in Europe.

Economics

ADA Secretary Predicts Dramatic Rise in Dental Care Demand

Implementation of the American Dental Association's dental health program for children will mean that hundreds of thousands of dentally indigent children in the United States who have never seen a dentist will receive dental care, a US dental leader told Canadian dentists at the centennial CDA-ODA convention in Toronto May 15.

Harold Hillenbrand of Chicago, secretary of the American Dental Association, said there had been a national thrust during the past quarter century for making a healthier America a near-term objective. This attitude is reflected by 'precedent-shattering' legislation passed by the 89th US Congress in 1965, he said. That year the ADA also initiated steps which culminated in the children's dental health program adopted in November last year.

Continued population growth, increased personal income and broader use of dental insurance will have a 'substantial impact' on future public demand for dental care, he explained.

He pointed out that the US Bureau of Census estimates that the population in the United States will reach 223 million by 1975, an increase of 15 per cent over the current figure.

In addition, "the predicted increase in family income alone is expected to cause about a 25 per cent rise in demand for dental care by 1975." Another factor will be greater use of prepayment programs of dental insurance, he said.

"The principal types of private prepayment plans in the United States are those of commercial insurance companies and those of dental service corporations. The latter are non-profit plans sponsored by state dental societies. Dental service corporations have been established in 30 states, and 16 of these are actually in operation."

Dr. Hillenbrand, who has been secretary of the 106,000-member American Dental Association since 1946, said "More than three million persons now are covered by commercial and non-profit dental prepayment plans. It has been estimated that 50 million persons will be covered by some form of prepaid dental plans within the next decade."

He predicted that children's dental care will be the greatest area of increased demand. The ADA's children's program eventually will make dental service available to all children in the United States, he said.

He pointed out that the number of dentists is not expected to increase as fast as the child population. Part of the solution, he suggested, lies in mobilizing the 23 per cent of US dentists who admit that

they could accept more patients.

Dr. Hillenbrand noted that the US Congress is currently conducting hearings on an administration proposal calling for a \$5 million pilot project program for children's dental care. Under the proposal, 10 pilot projects involving approximately 100,000 first grade children of low income families would be initiated during the fiscal year 1968.

Such studies, he observed, should lead to a realistic assessment of manpower resources including immediate consideration of the distribution of dentists and dental auxiliary personnel and the demand for trained dental administrators.

He also noted that current preventive dental techniques might influence future demand for care. "Measures which prevent dental decay, including fluoridation, actually may increase the amount of dental care sought in the future. The number of teeth lost will be less, and those lost generally will be lost later in life. A slower rate of tooth decay likely will mean more crowns, bridges and partial dentures, and more treatment for periodontic disease. These are time-consuming procedures for the dentist." Dr. Hillenbrand emphasized that preventive measures, however, provide for a "dentally healthier population."

Ottawa Conducts Dental Care Fact Finding Projects

Opinions, unless they are backed up by facts, are of very limited value, R. A. Connor, chief of the Dental Health Division, Department of National Health and Welfare, told Canadian dentists at the centennial convention in Toronto May 14. His division and its associated committees are therefore gathering information on the following aspects of dental care:

What is the dental health of the Canadian adult and child population?

What and how much dental service is received by people who can afford dental care and who are regarded by their dentists as regular patients?

How much care do young adults entering the armed forces require?

How much maintenance care do they require?

How much time is required for initial and maintenance care for preschool and elementary school children entering programs at different ages? What is the permanent effect of postponing entry into such a program until a later age?

What proportion of Canadians aged 15 and over visited a dentist in the past 12 months?

What proportion of Canadian children under age 14 visited a dentist in the past 12 months?

How many dental programs provide treatment service to definable groups of Canadians?

Who and how many are eligible for treatment?

How many of these receive service and what and how much service do they receive?

How are these services financed?

How is the dentist who provides treatment remunerated?

Cooperating in these projects are practising dentists, provincial dental health divisions, school and institutional services, members of faculties of dentistry, the Royal Canadian Dental Corps, the Division of Research and Statistics of the Department of National Health and Welfare, and the Dominion Bureau of Statistics.

Manitoba Dentists Seek Action on Mechanics' Report

The Manitoba Dental Association has requested action by Manitoba's legislators on the report of a Special Committee of the Legislature on Mechanics and Dental Technicians. The report, tabled on April 5 last year, states that "dentists should retain full control of and be fully responsible for the oral health of the public."

The issue, which has been developing for a number of years, is whether or not mechanics and dental technicians should be allowed to operate their own businesses and fit dentures without the supervision of a dentist.

In a letter distributed to all members of the legislature, the association claimed this would degenerate into a situation where the mechanics would perform

other dental services, and since they do not possess the specialized knowledge of a dentist this would result in a lower dental health standard for Manitoba.

"It is a question of inviting the erosion of dental health standards by permitting the dental technician to provide services directly to the public. Today the dental technician wishes to perform only minor services, but tomorrow he will be demanding greater freedom, and it will be immeasurably harder to refuse him," the association said in its letter.

The dentists are keenly aware of the harm that can be inflicted on the public by dental quackery, and cannot take the risk that their silence may be interpreted as tacit acquiescence, it stated.

The letter poured cold water on the idea that the price of dentures might drop if mechanics were allowed to set up their own shops. On the contrary, it said, they would probably go up because the mechanics would then be faced with all the overhead costs of operating a business.

"The dentist is the only person suited by training and education to direct the dental health team and be responsible for its efforts," the association said. "It is to the benefit of the public for auxiliaries and technicians to relieve the dentist of routine duties and complement his endeavours. But the safety of the public demands that the dentist be ultimately responsible for all dental work."

Quebec College Advocates Subsidized Fluoridation

The College of Dental Surgeons of the Province of Quebec, in a brief presented to the Castonguay Health Commission, has called for water fluoridation with government subsidies to municipalities committing them to put this into effect. The recommendation could form the first stage of a provincial dental health program.

The second step, said the College, should be to provide free dental service to children of people on relief, followed by coverage for all people receiving support from the province's family and welfare department, now estimated at 340,000. The CDSPQ, calling for recognition of dentists on the same level as physi-

cians under a medicare plan, said the next stage of a dental health program should cover the entire population starting with children between three and six years old.

The College also called for the enlargement of McGill's dental faculty and the immediate establishment of one at Laval University, Quebec City.

Saskatchewan Dental Auxiliary Study Started

A committee to study the possibility of using dental auxiliaries in Saskatchewan (as reported on page 47 of the January Journal) has been set up by the Saskatchewan government.

The committee's terms of reference, says the May 9 *Regina Leader Post*, are broad and the committee will study the need for additional dental service in Saskatchewan and recommend means to provide it. Following are said to be the committee's terms of reference:

To study present and future needs for dental services:

To recommend programs for the more effective use of existing personnel;

To define the term dental auxiliary;

To recommend possible use of dental auxiliaries;

To study the feasibility of a dental auxiliary training program; and

To set standards of professional supervision of dental auxiliaries.

Regina businessman W. T. Patton has been appointed chairman. Three representatives of the Saskatchewan College of Dental Surgeons on the committee are R. O. Brett, W. F. Wihak and C. N. Bolen, all of Regina. Committee representatives from the Department of Health are W. J. Totten, J. D. Ramsay and A. L. Lizaire. Dr. Lizaire is a public health dental officer. Mrs. Audrey Sojonky is an additional member representing the provincial department of education.

Seventeen Per Cent Use First BC Prepayment Plan

Directors of Canada's first prepaid dental care plan are said to be pleased with re-

sults so far and hope for expansion. Introduced July 1, 1966, the plan covers 1,345 families of members of the Sheet Metal Workers and Flat Deck Roofers' Union in the British Columbia lower mainland. It is a joint venture of the CU&C Health Services Society and the Dental Services Association of BC.

Only 414 participating families used the plan during the first six months. More than 4,000 persons are covered, but only 700 or 17 per cent have used the service.

Monthly premiums are \$6.16 for families and \$2.60 for single persons. They are paid through the welfare fund for dental care under the industry's union-labour contract. The fund is jointly administered by union and management, with the employer paying 12 cents per hour per employee. This general fund also covers sickness and accident, pension, medical care and life insurance.

Fluoridation

New Fluoride Compounds Held 'Promising'

"Fluoridation is still the most exciting discovery in the prevention of dental cavities since the beginning of dentistry," Gordon Nikiforuk, chairman of the Oral Biology Division and professor of children's dentistry, University of California at Los Angeles, told Canadian dentists in Toronto May 17.

The former assistant director of the Hospital for Sick Children's dentistry department returned to Toronto to address the CDA-ODA centennial convention. Giving a 'critical evaluation of fluorides,' Dr. Nikiforuk said this chemical was today preventing two out of three potential cavities in children's teeth. "With even more effective fluoride compounds to be expected from science, I believe fluoridation will be 90 per cent effective and dental cavities will cease to be a public health problem within a decade," he said.

He cited the following significant facts:

Fluoride content increases with the age and maturity of the teeth;

Fluoride tends to accumulate in surface cracks near the organic component of enamel;

Prenatal ingestion of fluoride has a negligible effect on caries resistance of the deciduous teeth.

All children up to age 12 should ingest fluoride by water or tablets, he said. This should be supplemented by topical applications in the form of gels or solutions such as acidulated fluoride-phosphate. Aqueous solutions of sodium fluoride (0.1 Gm per 100 ml. water) for self-application by rinsing or brushing should be used by patients with rampant caries, he suggested.

Fluorides play two vital roles, he said. They act as a catalyst to form more stable calcium compounds in the teeth. And fluorides have also been conclusively shown to prevent osteoporosis in some older people.

Only about one person in four in North America is protected today by municipally fluoridated water supplies, the University of California professor estimated. The dentists must augment this coverage with topical applications of fluoride compounds, he said. He noted that unsupervised brushing with a stannous fluoride dentifrice or a fluoride containing prophylaxis paste gives an additional modest benefit.

Canadian Nurses Association Endorses Fluoridation

Helen K. Mussallem, executive director of the Canadian Nurses Association, has announced that the Board of Directors of CNA "have gone on record as supporting the fluoridation of water." The action was taken March 15 on the basis of reports reviewed and opinions received from authoritative sources.

Minnesota Approves Mandatory Fluoridation Law

Minnesota, on May 19, became the second state in the United States to adopt a mandatory fluoridation law when Governor Harold LeVander signed a bill calling for the fluoridation of all municipal water

supplies by January 1, 1970. In Connecticut, a mandatory fluoridation law was passed in 1965.

Other states considering similar legislation include New York and Pennsylvania.

Research

Dr. Macdonald to Survey Research Support in Canadian Universities

J. B. Macdonald, who retired as president of the University of British Columbia at the end of June, will organize and direct a study of support of research in Canadian universities. The study, requested by the Science Council of Canada, has been commissioned by the Science Secretariat of the Privy Council and will require approximately a year for completion. Dr. Macdonald will be assisted by a team of consultants drawn from universities and government.

Purpose of the study is to formulate objectives that should be served by the research support program, recommend policies in this field, and determine the character of organization and management practices that will best meet these objectives and policies.

Deaths

Brett, Augustus Jasper. 82. Regina. Royal College of Dental Surgeons of Ontario, 1911. 29-5-67. Survived by Dr. R. O. (son) and Mrs. F. E. Tindal, Mrs. J. B. Geddes, Mrs. S. W. Collier and Mrs. P. W. Riegert (daughters).

Dawson, Willis Gordon. 68. St. Paul's, Pictou County, Nova Scotia. Dalhousie University, 1925. 20-5-67. Survived by Lenora (wife) and Jack and Frederick (sons).

MacKay, Alexander Walter. 75. Toronto. Royal College of Dental Surgeons of Ontario, 1921. 16-5-67.

McCaughey, Stanley Graham. 76. Ottawa. Royal College of Dental Surgeons of Ontario, 1912. 20-5-67. Survived by Mur-

iel (wife), Lloyd and Don (sons) and Mrs. Bruce Wright (daughter).

Thomson, Frederick C. Boston, Massachusetts. School of Dental Medicine, Harvard University, 1913. 22-4-67. Survived by Evelyn (wife), Colin (son), Miss Helen Thomson (sister) and H. S. Thomson (brother).

Watson, Arthur Melvin. 67. Calgary, Alberta. McGill University, 1926. 7-5-67. Survived by Mrs. C. F. Johnston and Mrs. G. M. O'Keefe (daughters).

Awards and Honours

CDA President **W. P. Munsie**, Vancouver, was named 'Dentist of the Year' at the

recent annual convention of the British Columbia Dental Association. Dr. Munsie was selected by his colleagues as the dentist who made the greatest contribution to dentistry and community affairs in British Columbia during the past year. The award is represented by an inscribed gold plate mounted on a scroll-shaped wooden plaque.

Canadian Dental Association War Memorial Essay Competition awards for 1967 have been won by **Marcel Beaulieu**, Université de Montréal (first prize), and **Judith A. Pick**, University of Toronto (second prize).

in memoriam

Augustus Jasper Brett

Dr. A. J. Brett of Regina died on May 29, 1967, at the age of 82. Born in Alliston, Ontario, in 1884, Dr. Brett graduated from the Royal College of Dental Surgeons of Ontario in 1911.

From the time of his graduation Dr. Brett practised in Vancouver until 1916 when he moved to Grenfell, Saskatchewan. He returned to Vancouver in 1920 and in 1922 moved to Regina where he worked until his retirement in 1961.

Dr. Brett was a past president of the College of Dental Surgeons of Saskatchewan, the Saskatchewan Dental Society and the Regina Dental Society. He served as secretary-registrar of the Dominion Dental Council for about 18 years. In 1951 he was named a fellow of the International College of Dentists and was an honorary life member of the Western Canada Dental Society, the College of Dental Surgeons of Saskatchewan and the Regina and District Dental Society.

Dr. Brett is survived by one son, Dr. R. O. Brett of Regina; four daughters, Mrs. F. E. Tindall of Atlanta, Georgia, Mrs. J. B. Geddes of Regina, Mrs. S. W. Collier of Toronto and Mrs. P. W. Riegert of Saskatoon, Saskatchewan; 12 grandchildren and one great grandson.

Willis Gordon Dawson

Dr. W. G. Dawson of St. Paul's, Pictou County, Nova Scotia, died on May 20, 1967, at the age of 68. Born in Glenholme, Colchester County, Nova Scotia, in 1898, he graduated from Dalhousie University in 1925.

Dr. Dawson practised in Halifax for 25 years and later served as director of the dental division of the Nova Scotia Department of Public Health until his retirement two years ago. He was on the dental school staff of Dalhousie University for 30 years. Following his retirement he resided in St. Paul's, Pictou County.

Besides his wife, Lenora, Dr. Dawson is survived by two sons, Jack and Frederick, both of Calgary, Alberta; two sisters, Mrs. Lyons Fraser of Tatamagouche, Nova Scotia, and Mrs. Allan MacDonald of Glencoe, Nova Scotia; a brother, Dr. J. Arthur Dawson of New York; and three grandchildren.

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31-5-67

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	<i>Amount invested</i>	<i>Market value</i>	<i>Unit value</i>	
	<i>Montant investi</i>	<i>Valeur au marché</i>	<i>Valeur unitaire</i>	
Government Bond Fund	\$ 734,215.14	\$ 695,305.20	\$13.969	Fonds d'obligations gouvernementales
Corporate Bond Fund	1,299,782.51	1,224,213.72	14.881	Fonds d'obligations corporatives
Common Stock Fund	4,587,404.83	4,943,223.19	20.344	Fonds d'actions ordinaires
	<u>\$6,621,402.48</u>	<u>\$6,862,742.11</u>		

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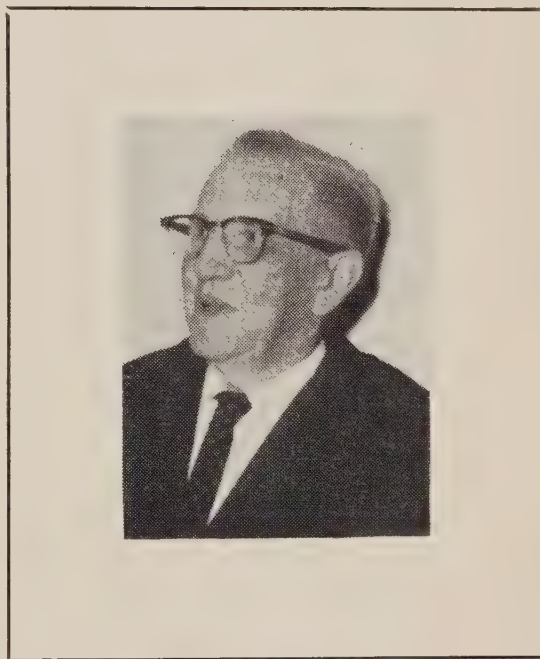
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Ashley Lindsay: teacher, editor, and visionary

"The members of the dental profession, each and all, have social as well as professional responsibilities. Let us beware of a smug complacency, of a complete trust in a busy life, of false confidence in the sufficiency of plenty, and an 'it cannot happen here' attitude."¹ Thus ran the manifesto of Ashley W. Lindsay when he assumed the editorship of the *Journal of the Ontario Dental Association* in January 1952. It was a maxim to which he remained steadfast throughout his literary career.

P. G. Anderson,² in a scholarly address delivered at the 1966 convocation of the American College of Dentists, reminded his audience that professional men and women influence the pattern of national life. The character of that pattern depends not so much upon their technical ability as upon their attitudes. Above all else, Dr. Lindsay championed attitudes — the way men look at things. Nowhere did he express this more succinctly than in these words: "There is need for dental reformers. They should let themselves be heard. History tells us tales of reformers. We read that before their reforms became dogma they had to overcome inertia, indifference, misunderstanding, prejudice and even acute hostility. Reformers of dental practice administration, management, personnel, content or expansion must expect to meet the inertia of tradition. Habitual usage has made the old system automatic, effortless — no change is considered possible. Indifference must be met by creating interest; misunderstandings met by repeated explanations. Prejudice, which inevitably generates when a new idea conflicts with an old and when there is a refusal to examine the new, must be reasoned with. The hostility of vested interests and of fearful souls must be challenged. These groups must be persuaded to realize that the new is not the destroyer of the old but rather its fulfilment."³



Forty-eight years of service as a missionary and educator helped to fashion this philosophy. Born in Magog, Quebec, Dr. Lindsay graduated from Toronto's Royal College of Dental Surgeons in 1907. That same year he persuaded the

Board of Missions of the Methodist Church of Canada to send him and his pretty young wife to West China. There was not a single qualified dentist in the entire country at that time. The Lindsays therefore set about to open a dental clinic of their own, a haven for the dental needs of their Chinese wards. Chengtu, where they settled, became the site of a new university — West China Union University — in 1910. Supported by churches in Canada, the United States and Britain, the university started a medical school which opened its doors four years later. In 1917 Dr. Lindsay began to teach the first two students to enrol in the university's fledgling department of dentistry. Between the Great Wars and on to 1950 Dr. and Mrs. Lindsay both served at West China Union University — he as dean of the dental faculty (1921-50) and subsequently as vice chancellor of the university, and she as librarian and assistant professor of English. There they were joined at various times by other Canadian dentists — men like John Thompson, Harrison J. Mullett, R. M. Anderson, Gordon Agnew, W. Gordon Campbell and, for a brief spell, J. H. Mullett.

Events, which are now a part of history, forced the Lindsays to return to their native land in 1950 — this time for good. Here Dr. Lindsay was to take up the editorial pen in January 1952. He retired last June after more than 15 years of distinguished service as a dental editor. It was a good career that he travelled, the kind that leads a man, by talent and character, to the fulfilment of his aspirations. We salute him, for he has wrought well for his country and his profession.

1. Nineteen hundred and fifty-two. *J. Ontario Dent. Ass.* 29:10, 1952. Editorial.

2. Anderson, P. G. What a man thinks of himself. *J. Amer. Coll. Dent.* 34:99, 1967.

3. Reforms in dental practice are overdue! *J. Ontario Dent. Ass.* 29:413, 1952. Editorial.

The 1968 budget

It happened again on May 13 in Toronto's Royal York Hotel. That was where the 19 governors of the Canadian Dental Association put the stamp of approval on yet another deficit budget — this one for 1968.

The reference committee which dealt with the treasurer's report had wrestled with its assignment far into the previous night. Gloomily its members had taken cognizance of the deficits which had piled up in three preceding years. Treasurer G. M. Dewis had told them about the \$25,000 which had been withdrawn from the reserve fund to meet operating expenses in 1966. He had warned that the \$217,241 reserve was less than the Association's annual budget — far below what is desirable for an association like ours.

Despite sombre forebodings, the reference committee at first attempted to grant what each council, committee and bureau had requested for 1968. Then it tried to curb run-away costs. In the end it had to settle for a compromise. And so 10 councils, committees and bureaux were exposed to the keen edge of the fiscal blade as contemplated expenditures were pared to the bone and several worthy projects had to be sacrificed or curtailed. Despite such heroic measures, the reference committee ended up with yet another deficit budget — this one to the tune of \$2,570.

On the following morning, the governors accepted the proposals of the reference committee. They had no other choice. And so they added yet another red line to that dismal list — \$11,651 in 1964, \$30,287 in 1965, \$8,202 in 1966. At the same time the governors failed to provide any money for the task force on the children's dental health program, the National Certification Board

for Dental Assistants, and several other projects which they had approved during the three preceding days. These now cast an additional shadow over our dwindling reserves.

How does one reconcile essential services with the dictates of economy? For how long can we drain our fiscal reservoir without impairing financial stability? Where is the critical threshold that makes the CDA either a viable instrument for its members or one that is badly handicapped? These are the vital questions that emerge from the exercise performed May 10-13. They should engage the attention of every member.

In his book, *Self-Renewal: The Individual and the Innovative Society*, John W. Gardner tells us that "every individual, organization, or society must mature or head for the graveyard." What really matures, he explains, is a skeleton or framework within which continuous innovation, renewal and rebirth can occur. But insolvency is hardly compatible with maturation. Without proper nourishment, the outlook is bleak.

Le budget 1968

Le budget a été débattu à nouveau, le 13 mai, à l'hôtel Royal York, à Toronto. Les 19 gouverneurs de l'Association dentaire canadienne ont encore approuvé un budget déficitaire, cette fois-ci pour 1968.

Le comité d'étude qui s'occupait du rapport du trésorier a poursuivi ses débats tard dans la nuit. Ses membres ont dû prendre connaissance, lugubrement, des déficits qui se sont accumulés dans les trois dernières années. Le trésorier, le Dr G. M. Dewis leur a appris qu'environ \$25,000 avaient dû être retirés du fonds de réserve pour couvrir les frais d'exploitation, en 1966. Il les a mis en garde en leur faisant remarquer que les \$217,241 en réserve étaient une somme inférieure au budget annuel de l'Association et certainement bien en-dessous du montant souhaitable pour une association comme la nôtre.

En dépit de ces sombres auspices, le comité d'étude a tout d'abord essayé d'accorder à chaque conseil, comité et bureau ce qu'ils demandaient pour 1968. Puis il a essayé de freiner les dépenses galopantes pour finir par adopter un compromis. C'est ainsi que dix conseils, comités et bureaux ont été les victimes de la lame tranchante de la guillotine financière. Les dépenses envisagées furent réduites au minimum et plusieurs projets désirables durent être sacrifiés ou limités. En dépit de ces mesures héroïques, le comité d'étude finit par s'arrêter à un autre budget déficitaire, le déficit se montant cette fois-ci à \$2,570.

Le lendemain matin, les gouverneurs acceptèrent les propositions du comité d'étude. Ils n'avaient d'ailleurs pas d'autre alternative et ils ajoutèrent ainsi une autre ligne rouge à une liste déprimante: \$11,651 en 1964, \$30,287 en 1965 et \$8,202 en 1966. Entre-temps, les gouverneurs ne réussirent pas à trouver l'argent nécessaire pour l'équipe qui s'occupe du programme de santé dentaire des enfants, pour le conseil national de certification des assistantes dentaires et pour plusieurs autres projets qui avaient été approuvés au cours des trois jours précédents. Ceux-ci menacent aussi maintenant nos ressources en diminution.

Comment concilier les services essentiels et les exigences de l'économie? Pendant combien de temps pouvons-nous drainer notre réservoir monétaire

sans mettre notre stabilité financière en danger? A quelle limite critique l'ADC sera-t-elle sévèrement handicapée et cessera d'être un instrument efficient pour ses membres? Ce sont là des questions vitales qu'ont soulevées les débats du 10 au 13 mai et tous les membres devront leur accorder la plus grande attention.

Dans son livre *Self-Renewal: The Individual and the Innovative Society* (Le renouvellement personnel: l'individu et la société innovatrice), John W. Gardner nous dit que "Tout individu, toute organisation, toute société doit évoluer ou se résigner à périr." "Le processus d'évolution," explique-t-il, "est une innovation continue, un renouveau, une renaissance qui prend place dans une armature ou dans un cadre donné. Mais il est bien difficile de concilier insolvabilité et évolution. Faute de moyens suffisants, l'avenir semble peu prometteur.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

■

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

illustrations of radiographs that were made by the panoramic method. The author and publisher are to be commended.

One must, however, take issue with the first sentence of the summary blurb for no single radiograph can ever "afford a complete view of the jaws and surrounding structures" of any other region. It is firmly established in the practice of radiology that there must be at least two projections of any bone and, I would add, of any tooth. Not to adhere to this basic requirement is unwise and often dangerous.

Panoramic radiography has a very useful place in radiology — perhaps chiefly as a 'scout' film or in case finding; but it would be wrong and unfair to the method to make false claims for a procedure which with increasing experience in its use reveals serious limitations which are and must be inherent, and which most proponents wisely recognize, as this author does, but only in part.

H. M. Worth,
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Panoramic Radiography in Oral Surgery

To the Editor:

The article, "Panoramic Radiography and the Practice of Oral Surgery" (J. Canad. Dent. Ass. 33:192, 1967), contains some excellent

To the Editor:

The statement, "a complete view of the jaws and surrounding structures," in my article on panoramic radiography (J. Canad. Dent. Ass. 33:192, 1967) is used in the sense that all these structures are included in the sur-

vey on one film, and not in the sense that this is adequate. Nevertheless, the following observation made elsewhere in the article bears repetition: "... The machine has proved to be a very useful adjunct in radiographic investigations prior to surgery."

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Specialists and Specialization

To the Editor:

I would like to congratulate Dr. Pelletier on the editorials in the January and February issues of the Journal regarding "Specialists and Specialization."

It is time that the practising dentist looked hard and seriously at steps which have already been taken over the years culminating with the establishment of the Royal College of Dentists of Canada. In the future the Royal College will probably determine not only the number of specialties but the so-called requirements for specialization. The spokesmen of organized dentistry and their counterpart in the universities do not have much time left in which to produce a more flexible and imaginative alternative for the future.

The so-called basic sciences now cross paths so frequently that what only 10 to 15 years ago appeared as distinct barriers are rapidly disappearing. The anatomist now tries to understand structure and function in the cell at the macro-molecular level just as much as the biochemist is attempting the same thing from another direction. By creating clinical specialties today, we may actually inhibit natural development in the science and art of dental practice. Likewise, through subconscious self-interest a specialty may create an aura of mystique and persuade

the teacher that he has little to offer at the undergraduate level. Nothing could be further from reality.

I would submit that only three main specialty areas need exist. Paediatric dentistry should embrace undergraduate and graduate orthodontics, preventive dentistry, public health dentistry and paedodontics. Oral surgery should include anaesthesiology and maxillofacial prosthetics in addition to undergraduate and graduate oral surgery. Stomatology should embrace undergraduate and graduate periodontology, endodontics, oral medicine and radiology. The baseline for all three specialty areas is diagnosis and treatment-prescription.

The dentist of the near future will have to be able to prescribe not only the treatment he renders but also the treatment that an auxiliary is perfectly capable of giving in preventive dentistry, periodontology, complete and removable partial prosthesis, and operative dentistry.

Prophet (*Dent. Pract.* 4:130-134, 1966) indicates that at University College Hospital, London, 67 per cent of the student's total time is still taken up with operative clinical and laboratory techniques. Only 17 per cent of his time is spent in all other clinical departments. Only 6 per cent of his time is allocated to lectures, laboratory classes in pathology and bacteriology, and clinical instruction in medicine and surgery. And in the total dental course, the student has only 10 per cent unallocated time.

I submit that there is plenty of room in present undergraduate curricula for the introduction of new schedules based on a realignment of duties for the dentist and his auxiliaries. If this were done, we could look more critically at the whole question of specialization.

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Erratum. — A news item (Quebec College Advocates Subsidized Fluoridation) on p. 408-9 of the July Journal contains erroneous information about the brief submitted by the College of Dental Surgeons of the Province of Quebec to the Quebec government's Castonguay Health Commission. The CDSPQ advocated "that at the outset there be established a treatment plan for all welfare recipients (about 340,000) of benefits from the Department of Family and Welfare. However, should it turn out that it is impossible for the government to assume this cost at present, we recommend that welfare recipients' children be treated as a start." The College also recommended "as a second stage in a dental insurance system and starting from its first year of application, the inclusion of all children aged three to six." The CDSPQ did not, however, visualize an extension of these services to the entire population as suggested in the Journal news item.

Dental development during the first two years of life

A. S. Richardson,* DDS, MSc, Cranbrook, British Columbia and
C. R. Castaldi,† MSD, Winnipeg, Manitoba

Growth and development of the dentition during the first two years of life were studied by direct measurement of dental casts and by symmetrograph and pantograph tracings obtained from 38 children. The results show that the anterior portion of the dental arches increases slightly during the first year. This increase is greater in the maxilla than in the mandible. Posterior mandibular arch growth at first lags behind its maxillary counterpart but later accelerates and even exceeds some dimensions of posterior maxillary arch growth. These growth changes are apparently associated with eruption of the deciduous teeth. There is little change in the height or the posterior width of the palatal vault. In the one year old child, bulging of the alveolar process around the erupting first molars decreases vault width in that area. At first the mandibular arch is posterior to the maxillary arch but this relationship decreases progressively with advancing age. Lack of anterior opening between the occluded gum pads, observed in more than a quarter of the subjects, may be a factor in the development of malocclusion.

La croissance et le développement de la dentition au cours des deux premières années de la vie ont été étudiées chez 38 enfants, par mensuration de modèles des dents et au moyen de tracés symétrographiques et pantographiques. Les résultats montrent que la partie antérieure de l'arcade dentaire grandit légèrement pendant la première année. L'augmentation est plus forte pour le maxillaire supérieur que pour le maxillaire inférieur. La croissance de l'arcade mandibulaire postérieure est d'abord en retard sur celle du maxillaire supérieur, mais ensuite elle devient plus rapide et pour certaines dimensions, elle dépasse même la croissance de l'arcade postéro-supérieure. Ces modifications de la croissance sont apparemment liées à l'éruption des dents temporaires. La hauteur et la largeur de la voûte palatine postérieure changent peu. Chez le nourrisson d'un an, l'augmentation de volume du procès alvéolaire qui entoure les molaires temporaires en voie d'éruption entraîne une diminution de la largeur de la voûte. L'arcade inférieure est d'abord en retrait de l'arcade supérieure, mais cette position s'atténue progressivement. L'absence

d'espace entre les crêtes gingivales dans la région antérieure, telle qu'on l'observe chez plus du quart des sujets, contribue peut-être au développement d'une malocclusion.

Surveys of the incidence of malocclusion¹⁻³ clearly indicate that the resolution of this problem — even in the event of ultimate control of dental caries and periodontic disease — hinges on early detection and interception. Such an approach, however, is impractical without guidelines based on comprehensive knowledge of dental development, particularly during the early period of life.

We have considerable information about the form and dimensions of the dental arches in the new-born.⁴⁻¹³ There have also been extensive serial investigations of the development of the dentition between age three and the early twenties.¹⁴⁻¹⁶ But

except for studies of the time of tooth eruption,^{17,18} there are few reports about dental development between birth and age two. The most extensive work was done by Sillman who followed a group of 65 normal subjects for 25 years.^{16,19,20} Five anatomical landmarks were chosen in the maxilla and the mandible and 12 straight line measurements were made on study casts obtained at yearly intervals. Sillman observed accelerated growth in cuspid width and length in the maxilla and mandible of both sexes during the first two years of life. Accelerated growth in the total length of both jaws occurred up to age three. He also found that dental arch growth precedes the eruption of groups of teeth. Heckmann and Hiecke²¹ investigated the effects of bottle feeding and breast feeding on the development of the deciduous dentition in two groups of children. Their study period extended from shortly after birth to 2½ years. They

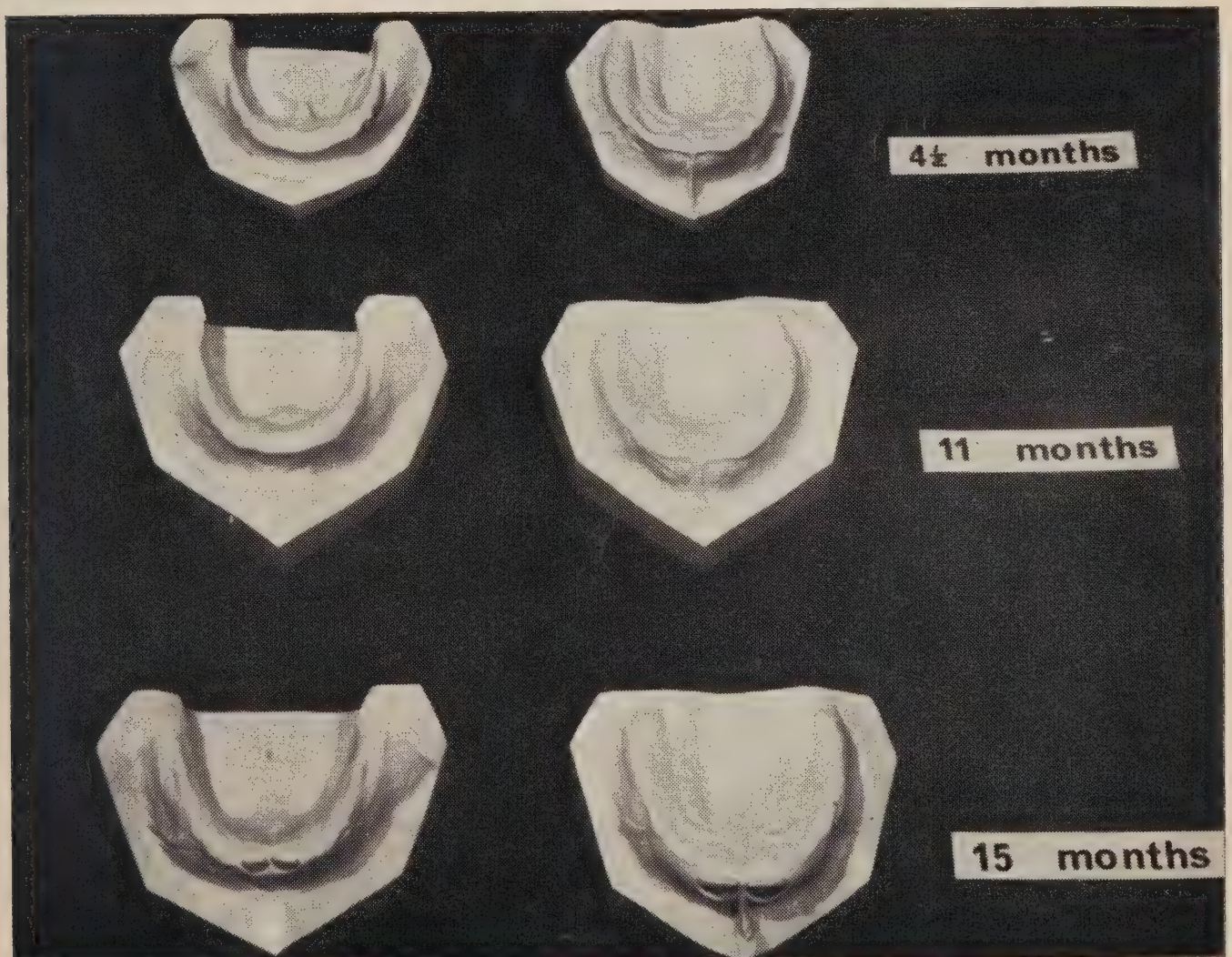


FIGURE 1 Three sets of casts obtained at periodic intervals from one subject.

found no difference between the effect of either type of feeding upon maxillary or mandibular maximum width.

METHOD

The purpose of our study was to find a suitable method for observing growth and development of the human dentition during early life. Having established such a method, we wanted to monitor (1) dimensional changes in the maxillary and mandibular arches, (2) dimensional changes in the vault of the palate, (3) occlusal relation of the dental arches, and (4) eruption times of the deciduous teeth.

Thirty-eight children were included in the study. Twenty-one were the children of dentists or dental students. Six were the children of other university students and the remaining 11 were from outside the university community. In addition to dental growth measurements, records were obtained of birth weight, birth history and whether the child was bottle or

breast fed. The present report is based on a series of 110 pairs (one maxillary and one mandibular) of dental casts of 18 males and 20 females obtained at six month intervals. The first sets of casts were obtained when the children were about five months old (with a range from one day to eight months). Of the total here reported, eight were followed to age 18-21 months, six were followed to age 21-24 months, and three were followed to age 27-30 months. One was followed to age 30-33 months.

First, a trial mix of one measure of fast set alginate (Jeltrate) with warm tap water was spatulated for 20 seconds. The setting time after spatulation was noted. Each child was then placed face down on a pillow with its head slightly overlapping one end. A new mix of alginate was spatulated for 20 seconds, using the same water temperature as in the trial mix. The material was then placed in an acrylic perforated tray lined with soft wax. The tray was inserted in the child's mouth five seconds before the calculated setting time. The child was held firmly and the tray was seated into place. It was removed after approximately 10 seconds. Moyco red counter wax was found to be most suitable for lining the trays. Both impressions were taken with the operator crouching and facing the child. The resulting casts were made of Alabastone dental stone. All casts were trimmed to a set pattern, soaped and polished (Figures 1 and 2).

Maxillomandibular records for edentulous children were obtained by using a wire bite fork coated with two sheets of medium soft red wax. The records were taken prior to the impressions and with the child on his back upon the pillow. For older children with several fully erupted teeth the bite fork was replaced with one precontoured sheet of Dr. Monson's wax bite patterns. To test the accuracy of the wax record, the occlusion was visually examined and recorded. Results of the visual inspection were later compared to the wax record.

Dental Arch Growth.—In order to measure growth changes in arch size, we selected anatomical reference points which could be identified on the casts before,

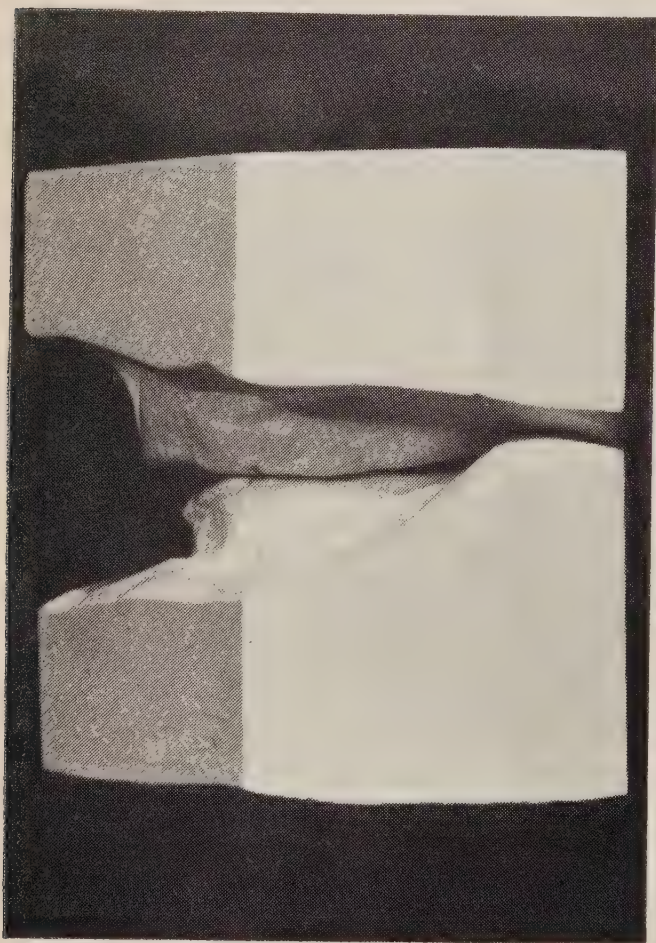


FIGURE 2 Articulated casts of a child in the preeruptive stage illustrating the anterior open bite, a condition found in 71.5 per cent of the cases.

during, and after the eruption of the deciduous teeth (Figures 1 and 3 and Table 1). Some of these reference points were previously described by other authors.^{6,12} Reference points were marked in pencil on the casts. Using a pantograph, as described by Stanton,²² a line following the crest of the ridges and passing through the points of reference was drawn to a magnification of two times (Figure 4). As the ridge contours were being traced, the reference points were noted and transferred to the tracing. The crest of the ridge could still be followed when teeth were present (Figure 5).

The incisal edges of the central and lateral teeth were then transferred. On these completed pantograph tracings a number of measurements were taken. These are listed and described in Table 2. All measurements were divided by two. To reduce error, direct measurements

were made on the casts using the reference points already marked. The casts and pantograph measurements were then compared and the mean recorded as the final measurement of that particular cord. All measuring was done with a caliper graduated to 0.05 mm. (Mitutoyo of Japan).

Occlusal Relation.—The reference points used to observe and record changes in the occlusal relation of the ridges are described in Table 3 and illustrated in Figure 6. Measurements which were taken with the casts in occlusion are listed and described in Table 4.

Palatal Vault Growth. — A prominent identifiable point on the rugae (point R) was marked on each maxillary cast in a series. This point was similar in each cast in a series. However, there was no need to have similarity between series.

TABLE 1 Reference points used to measure arch growth.

Landmark	Code	Description	
		Before eruption	After eruption
Maxilla			
Postgingival	A	Posterior border of the gum pad at the crest of the ridge. Adjacent to the termination of the alveolar palatine groove	Same as before eruption
Lateral sulcus point	B	Point at which the lateral sulcus crosses the crest of the ridges	Point on the crest of the ridge immediately distal to the deciduous cuspid. Remnants of the lateral sulcus are usually visible
Incisive point	C	Most anterior point on the incisive papilla in line with the crest of the ridge	Same as before eruption. The incisors erupted labial to the crest of the ridge, thus not disturbing the incisive point
Mandible			
Incisive point	D	Point where the midline crosses the crest of the ridge in the anterior segment	Midpoint between the central incisors or contact points. The incisors erupted through the crest of the ridge
Lateral sulcus point	E	Point at which the lateral sulcus crosses the crest of the ridge	A point on the crest of the ridge immediately distal to the deciduous cuspid
Posterior border of the pad	F	Posterior margin of the pad where it drops to the posterior ridge	With the eruption of the second deciduous molars, this point is destroyed
Posterior border of the ridge	G	Point at which the mandibular ridge terminates	Same as before eruption

TABLE 2 Dental arch growth measurements.

Measurement	Description
Maxilla	
Posterior palatal width	Distance between postgingival points A-A
Maximum palatal width*	Greatest width of the maxillary arch
Anterior palatal width*	Distance between lateral sulcus points B-B
Maximum palatal length	From the incisive point to the middle of the posterior width cord
Anterior palatal length	From the incisive point to the anterior width cord, following the midpalatal line
Palatal arch length	Following the arch contour, the distance from A to A passing through B, C and B
Mandible	
Posterior ridge width*	Distance between right and left posterior borders of ridge G-G
Posterior pad width*	Distance between right and left posterior borders of pad F-F
Anterior width*	Distance between lateral sulcus points E-E
Midline length	Distance from the incisive point (D) to the middle of the posterior ridge width cord F-F
Arch length	Total arch length from G to G following the crest of the ridge

*Measured on dental casts and pantograph tracings.

The first cast of a series was then orientated on a modified Korkhaus²³ symmetrograph (Figure 7). The cast was fixed so that the pointer followed the midline when the pointer moved laterally. The cast was then rotated 90 degrees and a perpendicular dropped to the midline from the postgingival point that was most easily identified (Figure 8). The point where the pointer crossed the midline was marked and recorded as J. The table

was then moved 10 mm. so that the pointer rested on the midline 10 mm. anterior to J. This new point was marked on the cast and recorded as K.

The table was then moved so that the pointer could be placed on point R. Next, a perpendicular was traced to the midline and point R¹ marked on the midline. By moving the table, the distance from R¹ to K was measured and recorded.

In each succeeding cast of the series,

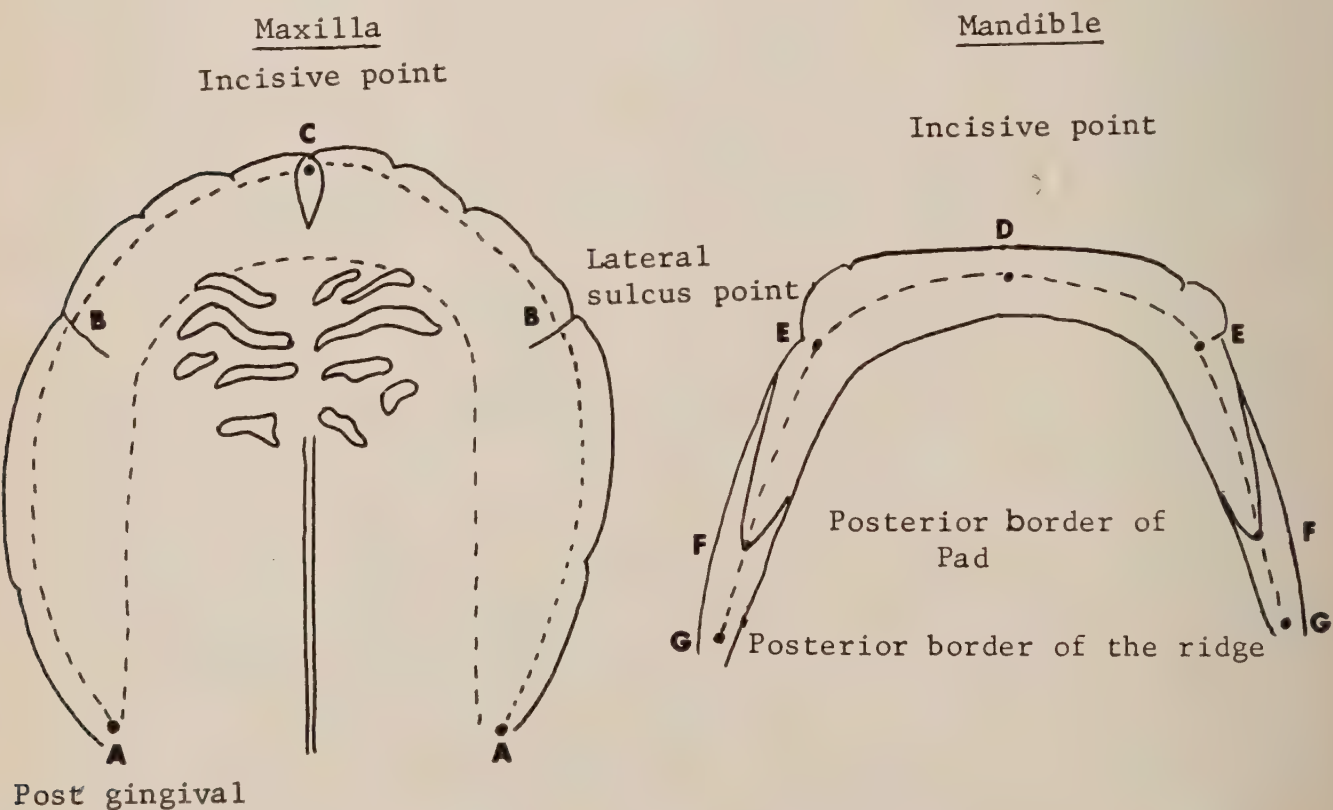


FIGURE 3 Anatomical reference points used to measure growth.

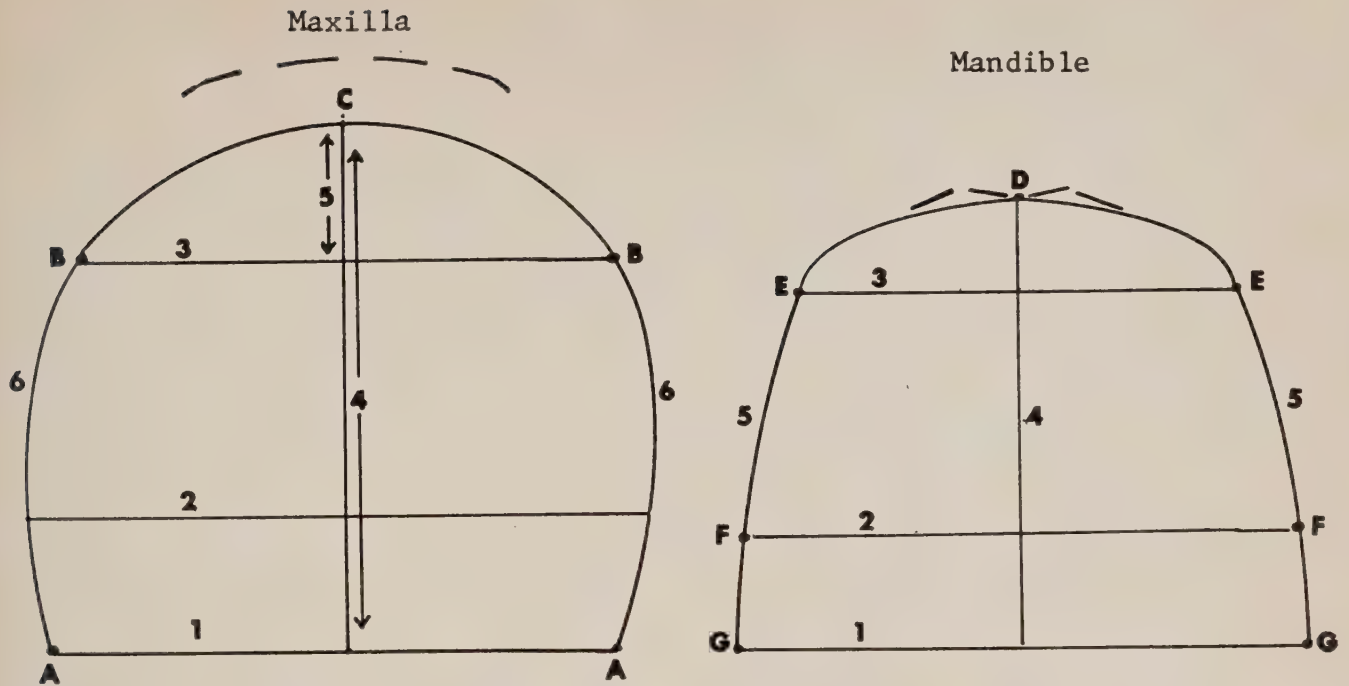


FIGURE 4 Pantograph tracing showing anatomical reference points, measurement cords and tracings of incisor teeth.

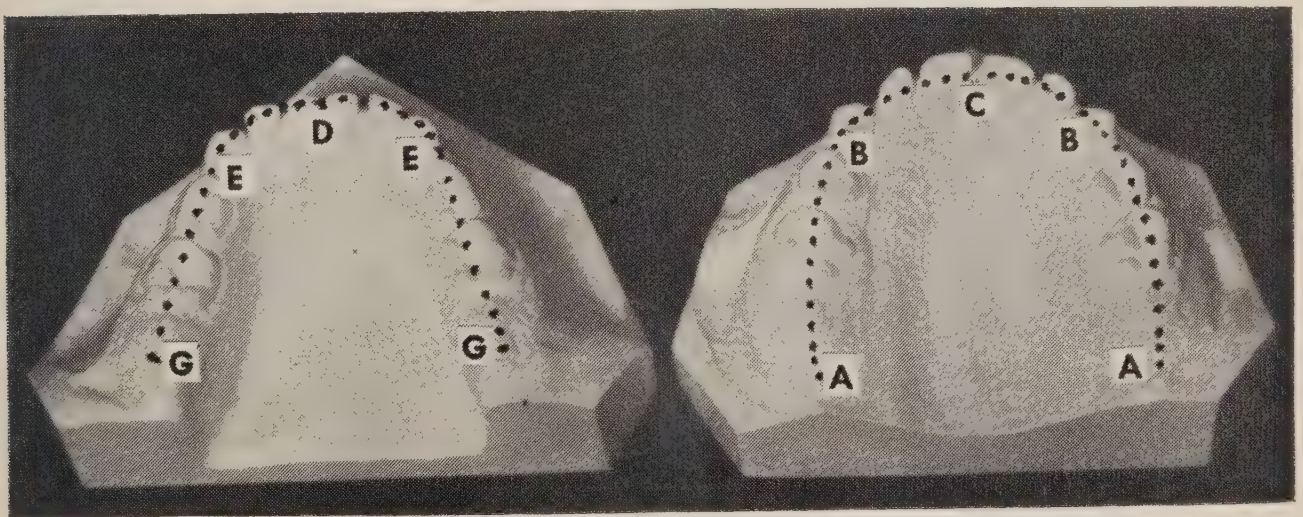


FIGURE 5 Dotted line indicates the position on the erupted teeth which corresponds to the crest of the ridge during the pre-eruptive period.

points J and K were obtained from points R and R¹. This procedure was followed in an attempt to have points J and K as stable as possible, unaltered by eruption of teeth and posterior ridge growth.

The transverse contour of the palate at point J and K was traced out and recorded. Each tracing extended from the alveolar palatine groove, through the depth of the vault, to the opposite alveolar palatine groove (Figure 9). The following measurements were made on these tracings: (1) palatal width at J, (2) palatal width at K, (3) palatal height at J, and (4) palatal height at K.

Eruption of the Deciduous Teeth. — At the first visit, an eruption chart was given to the parent who was asked to record the date at which the teeth were first seen projecting through the soft tissue. At each succeeding visit, the parent was reminded to continue using the chart.

RESULTS

Growth. — All recorded growth measurements were tabulated according to age groups, with each age group spanning three months. Means and standard de-

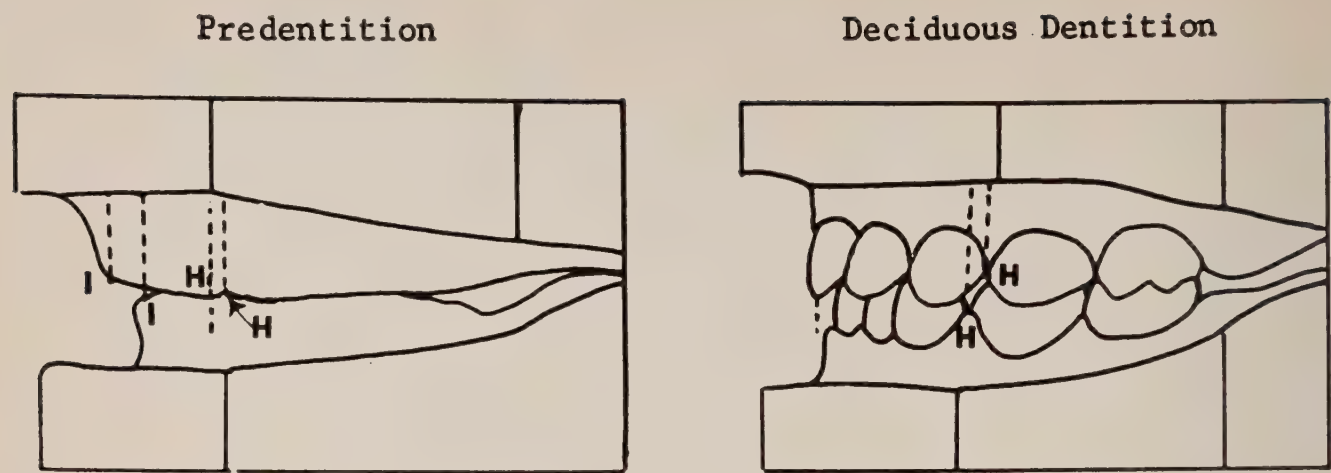


FIGURE 6 Reference points used to record changes in the occlusal relationship of the jaws.

viations were calculated for each group up to 21 months of age. Due to small numbers, calculations were not done beyond 21 months. Line graphs were developed from the calculated means (Figures 10, 11, 12).

Occlusal Relation.—Mean anteroposterior measurements of occlusal relation in the incisor and canine area are recorded in Table 5, in three month age groups. The incidence of anterior openings between the gum pads is recorded in Table 6.

Eruption Times. — Mean eruption times for the deciduous teeth were calculated (Table 7) from the 21 eruption charts that

were returned. Boys and girls were grouped together, as were right and left sides. No eruption dates were returned for the second deciduous molars in the period under study. The order of eruption is presented in Figure 13.

CHANGES IN DIMENSION OF THE
MAXILLARY AND MANDIBULAR ARCHES

For the purpose of discussion the changes are described as affecting the anterior and posterior aspects of the arches during the 0-6 months period and the 6-21 months period. There appears to

TABLE 3 Occlusal reference points.

Landmark	Code	Description	
		Before eruption	After eruption
Cuspid area	H	Where the lateral sulcus crosses the crest of the ridge	Immediately distal to the deciduous cuspids
ncisor area	I	Point where the crest of the ridge crosses the midline on both gums	Maxilla: incisal edge of the most normal central incisor Mandible: labial surface of the most normal central incisor

TABLE 4 Occlusal relation measurement.

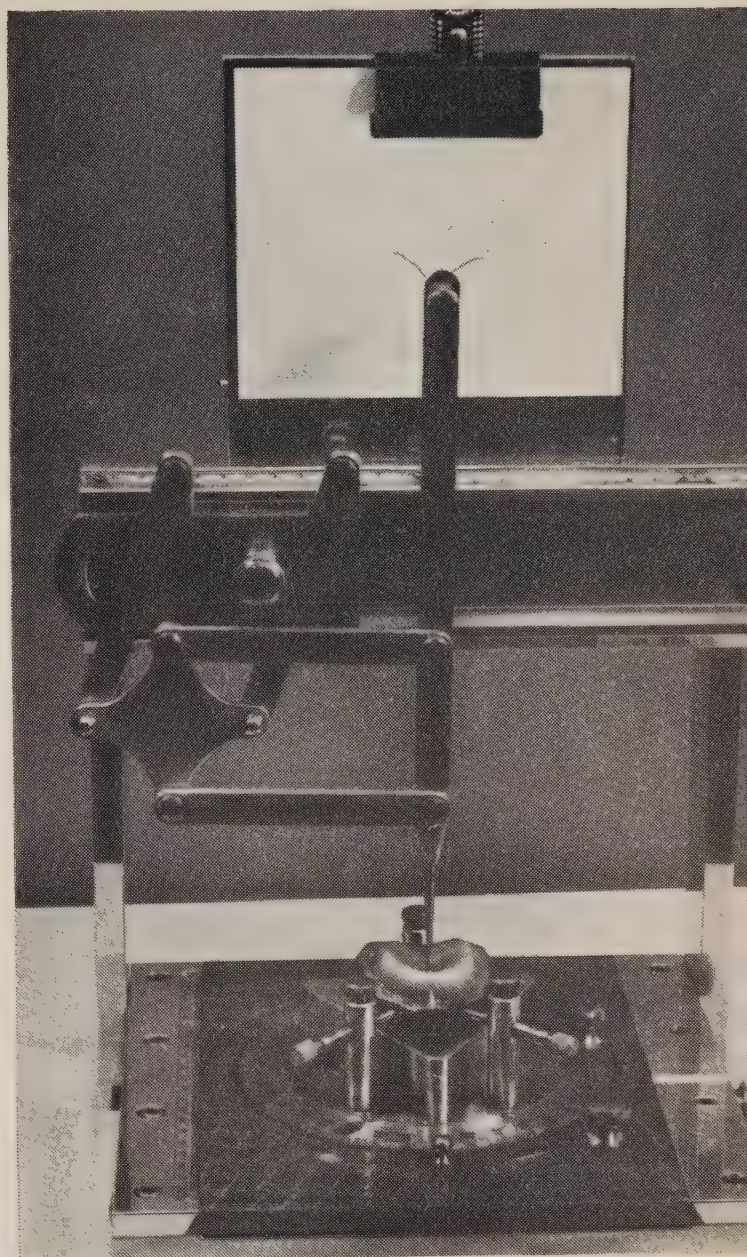
Measurement	Description
Overjet-anterior area	Distance between point I on the maxilla and point I on the mandible in the horizontal plane
Anteroposterior relation in cuspid area	Distance between two parallel lines perpendicular to the base of the mandibular cast and passing through the maxillary and mandibular H points
Pre-eruption anterior opening	Vertical distance between the maxillary and mandibular ridges in the incisor area

FIGURE 7 Modified Korkhaus symmetrograph used to record palatal growth.

be little growth in the anterior region of the maxillary and mandibular arches from birth to 21 months. One-half of the small increase that did occur was registered prior to six months of age; most of the remaining increase occurred between six and 12 months. The total increase in anterior width was greater in the maxillary arch (3.55 mm.) than in the mandibular arch (2.22 mm.). This may be a reflection of growth due to the eruption time of the maxillary deciduous lateral incisors. Actually, the slight increase in the dimension of the anterior region indicates that at birth the arch is almost big enough to accommodate the deciduous incisors which begin to erupt at about 7-9 months of age.^{17,18}

Except for the posterior mandibular pad width at 0-6 months, all the posterior arch dimensions increased more than the anterior arch dimension. Active growth in the posterior region from birth to 21 months provides space for the deciduous molars. At birth, space for the molars is quite inadequate, necessitating the observed growth spurt.

Approximately one-half of the maxillary arch growth occurred prior to six months of age. During the same period there was a smaller growth increment in the posterior region of the mandibular arch. This suggests that posterior mandibular arch growth lags behind posterior



maxillary arch growth from birth to six months of age. Posterior mandibular growth accelerates, however, between six and 21 months. For some dimensions it even exceeds posterior maxillary growth.

Arch growth seems closely related to the eruptive forces of the teeth. To assess this more closely, growth would have to be related to eruption times rather than chronological age. Moorrees²⁴ found tooth emergence and eruption to be more suitable as parameters of dental development than chronological order for defining the changes in arch dimensions for the average child. Continued follow-up of the cases in the present study will provide comparable data for analysing development of the deciduous dentition.

One might ask whether growth of the alveolar process results from eruptive

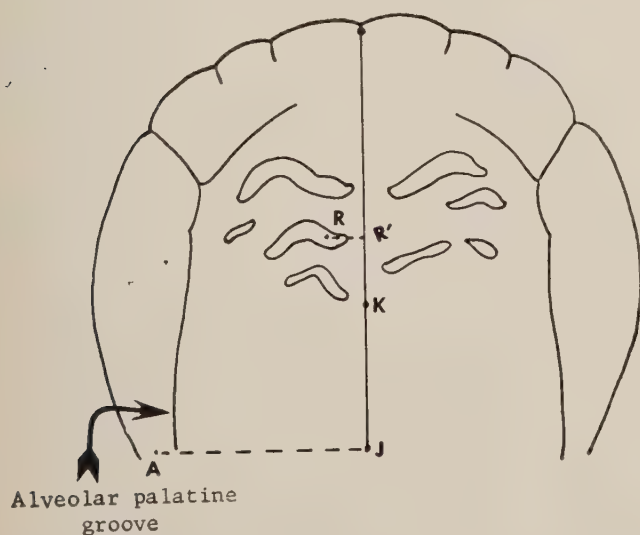


FIGURE 8 Reference points used for measuring palatal growth.

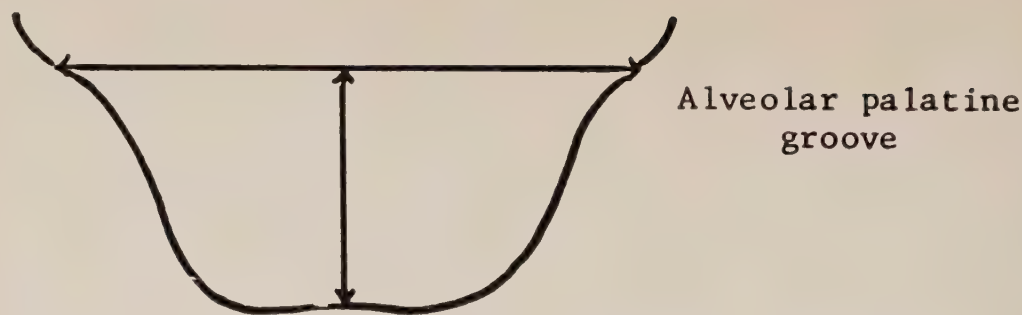


FIGURE 9 Palatal tracing obtained from symmetrogram illustrates how depth of palate was measured.

TABLE 5 Mean measurement of occlusal relation.

	Age in months															
	0 - 3		3 - 6		6 - 9		9 - 12		12 - 15		15 - 18		18 - 21		21 - 24	
	n	$\bar{X}$	n	$\bar{X}$	n	$\bar{X}$	n	$\bar{X}$	n	$\bar{X}$	n	$\bar{X}$	n	$\bar{X}$	n	$\bar{X}$
Anteroposterior relation in incisor area	5	4.2	18	3.2	9	2.4	12	3.0	11	2.2	15	2.5	7	3.0	4	2.2
Anteroposterior relation in cuspid area	5	0.7	18	0.8	9	1.5	12	0.9	12	2.1	15	2.4	6	2.4	4	3.1

forces or whether this growth is unrelated to the eruption of the teeth. The findings in this study appear to support the former. The slight growth spurt in the anterior region from birth to six months could be due to the eruptive forces of the deciduous incisors. In the posterior region the active growth period from birth to 21 months most likely serves to accommodate the deciduous molars. Cases of complete anodontia also support the hypothesis that alveolar bone growth is associated with the development and eruption of the teeth; there is almost no alveolar process in patients with anodontia.^{25,26}

CHANGES IN DIMENSION OF THE PALATAL VAULT

Palatal Vault Width. — At point J and at point K (10 mm. anterior to J), there was an irregular increase in the width of the palatal vault from birth to 12 months of age—irregular, because at nine months there was a slight decrease. This increase may be due to growth at the midpalatine suture, apposition and resorption of the alveolar process or, more likely, a com-

bination of both.¹⁴ The exact mechanism is not understood.

From 12 months to 21 months there was considerable difference in growth patterns at the two points. At point J there was no change in the vault width, indicating a cessation of growth. At point K, however, there was a 2.52 mm. decrease in the vault width, most of which occurred between 12 and 15 months. The reason for the decrease is not known. It may stem from a lingual bulging of the alveolar process to accommodate erupting first deciduous molars. This bulging is apparent on direct observation of the dental casts where point K is adjacent to the first deciduous molar area.

Palatal Vault Height. — Measured at points J and K, there was very little in-

TABLE 6 Incidence of pre-eruption anterior opening.

	n	%
Opening	25	71.5
No opening	10	28.5
Total	35	100

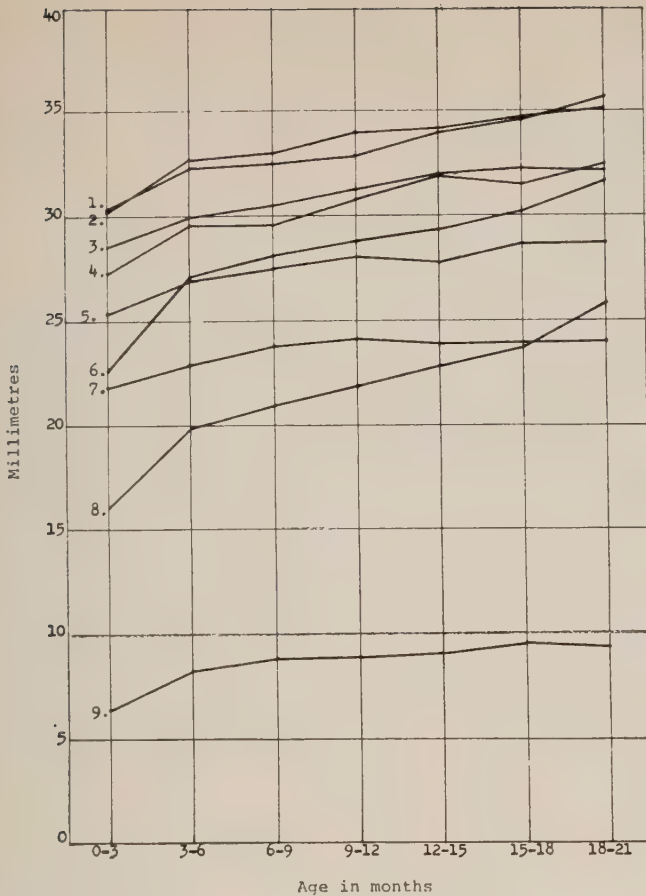


FIGURE 10 Mean growth measurements at different age levels. (1) posterior mandibular width; (2) maximum palatal width; (3) posterior mandibular pad width; (4) posterior palatal width; (5) anterior palatal width; (6) maximum palatal length; (7) anterior mandibular width; (8) mandibular midline length; (9) anterior palatal length.

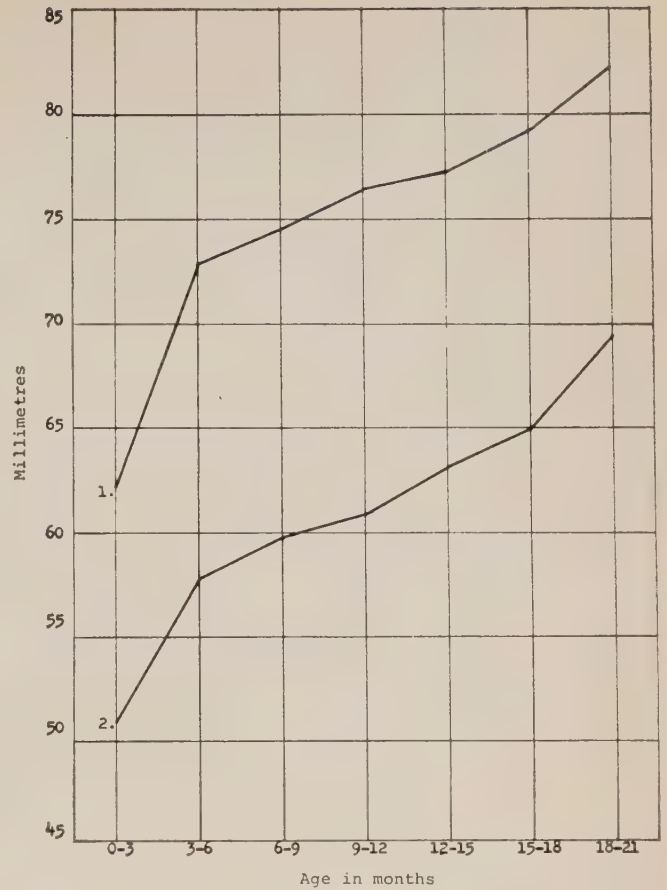


FIGURE 11 Mean growth measurements at different age levels. (1) palatal arch length; (2) mandibular arch length.

crease in the height of the palatal vault from birth to 21 months of age. The pattern of growth was quite similar at both points, although growth was slightly more active at point K from birth to three months of age.

Lebret¹⁴ observed no increase in palatal vault height in a serial study of children from five to 18 years of age. He used as his two references (1) a line drawn from the distal surface of the second deciduous molar perpendicular to the median palatal raphe and (2) a point 10 mm. anterior. It appears, from our study, that palatal vault height is almost established at birth, there being only a minimal increase during the first two years of life. Although our reference points are not exactly the same as Lebret's, they closely approximate the ones which he used. It is reasonable, therefore, to conclude that the palatal vault height is established prior to age one or even earlier and that it remains relatively stable to age 18.

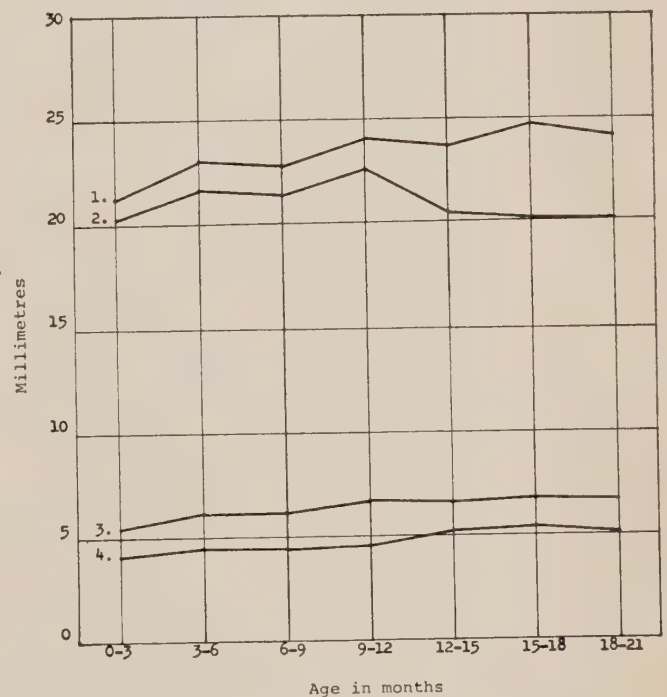


FIGURE 12 Mean palatal vault measurements at different age levels. (1) Width at point J; (2) width at point K; (3) length at point K (height); (4) length at point J (height).

Occlusal Relation of the Dental Arches.—Mean maxillary overjet in the incisor area decreased from 4.2 mm. at 0-3 months

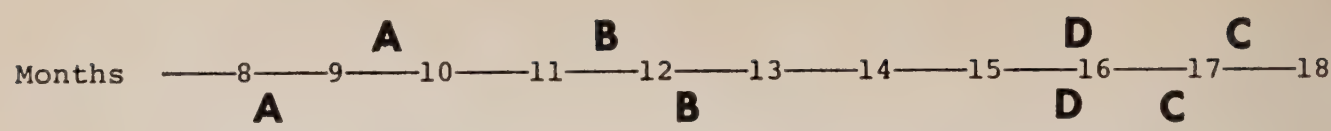


Figure 13 Order of eruption for the deciduous teeth excluding second molars.

to 2.2 mm. at 21-24 months. But, in the cuspid area the mean measurements increased from 0.7 mm. at 0-3 months to 3.1 mm. at 21-24 months. This indicates that forward growth of the mandible is greater than forward growth of the maxilla. Therefore the accelerated growth of the mandible decreases maxillary overjet in the incisor area and increases the distance between the maxillary and mandibular lateral sulcus points in the horizontal plane. These findings are similar to those of Clinch²⁷ and Sillman.¹⁹

An anterior opening was present in 24 out of 35 cases (71.5 per cent). The significance of this opening is not known. Clinch thought that lack of an opening would result in malocclusion, whereas Sillman considers the presence or absence of such an opening as immaterial. It may be that the anterior opening assists the infant in sucking. It is known that at birth the tongue is large in relation to the maxilla and the mandible, particularly the mandible. During swallowing, the tongue spreads between the gum pads. Moyers²⁵ believes that persistence of such infantile swallowing may result in malocclusion. Possibly, the inherited size and the activity of the tongue—particularly the former—help to establish the presence or absence of a pre-eruptive anterior opening. When children in the present study become three years of age, a correlation analysis should be done to determine whether any relationship exists between retained infantile swallowing, pre-eruptive anterior opening and malocclusion.

ERUPTION OF DECIDUOUS TEETH

The mean deciduous eruption times obtained from our study (which excludes second molars) are comparable to those obtained in other studies.^{17,18} There was a wide range in eruption times, indicating abundant individual variation. When these children attain age three, the individual eruption dates may be used to study the correlation of eruption with ridge growth as suggested previously in this discussion.

CONCLUSIONS

Dental casts were obtained from 38 healthy children covering the life span from one day to two years. In all but five cases the first cast was obtained prior to the eruption of any deciduous teeth. Subsequent casts were obtained at six month intervals, giving a total of 110 pairs of dental casts. Growth changes were studied by direct measurements of the casts and by symmetrograph and pantograph tracings.

- The following conclusions emerged:
1. Suitable dental casts for detailed growth studies can be obtained from children aged 0-2 years by means of commonly available alginate dental impression materials. Sedation or general anaesthesia are unnecessary for this purpose.
 2. The anterior portion of the dental arches increases slightly from birth to 12 months, but exhibits little change thereafter. This increase is greater in the

TABLE 7 Mean eruption times of the deciduous teeth recorded in months.

Tooth: right and left	Maxilla			Mandible		
	n	$\bar{X}$ months	Range	n	$\bar{X}$ months	Range
A	40	9.7	4.8 - 13.4	42	8.4	3.4 - 13.0
B	40	11.6	4.3 - 16.9	32	12.2	4.4 - 16.3
C	15	17.3	12.0 - 24.0	13	16.6	10.5 - 24.4
D	26	15.8	12.1 - 21.4	26	15.7	10.5 - 21.6
E	0			0		

maxilla than in the mandible.

3. From birth to 21 months the posterior portion of the dental arches increases more markedly than the anterior portion of the arches.

4. Posterior mandibular arch growth lags behind posterior maxillary arch growth from birth to six months of age. Thereafter, from six to 21 months, posterior mandibular arch growth accelerates and even exceeds some dimensions of posterior maxillary arch growth.

5. The observed growth changes in the maxillary and mandibular dental arches appear to be associated with eruption of the deciduous teeth.

6. Palatal vault height increases only slightly from birth to 12 months and very little thereafter, indicating that palatal vault height is established very early in life.

7. Palatal vault width, measured at the posterior border of the arch, increases from birth to 12 months of age and remains relatively constant thereafter.

8. Vault width in the first deciduous molar area also increases from birth to 12 months, then suddenly decreases to near the birth measurement, and remains there through to age 21 months. The decrease may be due to bulging of the alveolar process associated with the erupting first deciduous molar.

9. At birth the mandibular arch is posterior to the maxillary arch when the gum pads are in contact. This relationship decreases progressively up to age 21 months.

10. An anterior opening between the occluded gum pads was present in 71.5 per cent of the cases studied. Absence of this opening may be a factor in the development of abnormal occlusion.

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Structural shielding for dental x-ray installations

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A one inch concrete wall or its equivalent is not an adequate radiation barrier for persons situated in the vicinity of an 'average' dental office where x-ray equipment is being used. Architects, dentists and building owners in Ontario are urged to submit information about their proposed exposure and workload conditions to provincial radiation protection officials well in advance of intended building construction. These officials will then make appropriate structural recommendations to ensure against accidents or limitation of future treatment capacity of the installation.

Un mur en béton d'un pouce — ou d'une épaisseur équivalente — ne constitue pas une protection suffisante contre les radiations pour les personnes situées à proximité d'un cabinet dentaire où l'on effectue des radiographies. En Ontario, on demande aux architectes, aux dentistes et aux propriétaires de fournir au service provincial de protection contre les radiations des renseignements sur les doses et le nombre de clichés prévus, et cela longtemps avant la construction d'un immeuble. Le service responsable formulera alors les recommandations nécessaires à la construction en vue d'éviter des accidents ou une limitation de l'usage de l'installation.

Dentists occasionally question the legal and technical justification for the incorporation of structural shielding in a building which has to accommodate an x-ray installation. This doubt is probably aggravated by the cost of the installation, and also by the observed absence of lead

shielding in a considerable number of old dental suites. A more specific criticism has been advanced by Richards,¹ who pointed out that a dentist would have to perform a one-second exposure every 30 seconds of an eight hour day continuously in order to produce what Handbook 76 of

the US National Bureau of Standards² suggests as a practical shielding design workload.

The following remarks demonstrate the advisability or, in some cases, the necessity of structural protection in the dental office. They should enable a builder or dentist to understand the considerations governing the decisions of approving agencies.

LEGAL ASPECTS

Regulatory authority in Ontario stems from the Industrial Safety Act, Statutes of Ontario, 1964, Chapter 45. This act empowers certain officers of the Ontario Department of Labour to take necessary protective measures if "any place, matter or thing in an industrial establishment" is a source of danger. The act includes buildings which are used as offices and which are more than two storeys in height or have more than 5,000 square feet of enclosed gross horizontal area in any storey. The act stipulates that plans for construction, alteration of or additions to such buildings must be approved by the Department of Labour. Application Form 1 defines any source of ionizing radiation as "dangerous material." This means that most dental or medical centres come under the provisions of the act. Excepted are dental offices which form part of a private home.

TECHNICAL INFORMATION

The protective value of a one inch layer of concrete (density 147 lbs./cu. ft.) is roughly equivalent to two layers of $\frac{3}{4}$ ins. (total 1.5 ins.) sandplaster on metal lath or prefabricated 20 gauge steel sections, sandwiching fibreglas insulation between them. Similar partitions are frequently proposed or encountered. The protective value of standard plate glass, which is sometimes considered as part of a partition, is approximately equal to that of concrete. An exposure condition requiring two inches of concrete will call for two inches of plate glass.

We now assume that a dental unit is used near the centre of a standard oper-

ating room with a floor area of 3 x 3 metres (10 x 10 feet) exposing three partitions of the room to the direct beam alternatively but with equal frequency. We further assume that persons who cannot be moved, such as a receptionist or an employee in an adjacent office over which the operator has no control, have their customary working space located at the 'other side' of the partition, that is to say, at a distance of 1.55 metres (5 ft. +) from the tube. The International Commission on Radiation Protection recognizes as 'permissible' an exposure which involves a risk that is acceptable to the individual and to the population at large. We assume the corresponding dose to be 500 milliroentgen in one year. Our question is: how many dental films can be exposed without delivering that dose to persons working in the circumstances described above.

The widely used formula² for the solution of this problem is:

$$W = P \times d^2 / K \times U \times T$$

where W is the workload; $P = 0.01$ r/week; $d^2 = 2.4$ metres; $U = 1/3$; and $T = 1$.

The K values are taken from curves to be $K_{70} = 8 \times 10^{-3}$ and $K_{100} = 4 \times 10^{-2}$, the subscripts denoting operating voltages of 70 and 100 kilovolts.

The computation yields:

$$W_{70} = 540 \text{ ma-sec/week}$$

$$W_{100} = 108 \text{ ma-sec/week}$$

With standard ratings of 10 ma for 70 kvp and 15 ma for 100 kvp machines we arrive at 54 sec/week and 7.2 sec/week net exposure time for 70 and 100 kvp operations respectively. To simplify the discussion we will assume an exposure time of 1.5 sec. per film for the 70 kvp operation and 0.2 sec. for the 100 kvp operation which is somewhat representative of 'old fashioned' and 'modern' techniques. The answer to our question then is that one inch of concrete or its equivalent would allow 36 exposures per week before a dose of 500 mr in a year is exceeded.

DISCUSSION

Many dentists do not exceed workloads of 540 ma-sec or 108 ma-sec or approx-

imately 36 exposures per week. Furthermore, international regulations and recommendations allow a yearly exposure of 5,000 mr or 10 times the previously used figure to persons who benefit from some form of medical surveillance and procedural radiation safety control. One can assume that the law takes human imperfection into account so that a failure to grant these benefits may result in an undesirable or irregular but not necessarily dangerous or unsafe situation.

A 36 exposure per week dentist, whose receptionist or neighbour is in fact protected by a safety factor somewhere between one and 10, may well ask why he should incur the expense for putting additional lead shielding on the wall.

A more severe approach will consider anything exceeding a value of 500 mr as suggested by law or recommendation as unsafe. Furthermore, Yale³ has reported 1,200 ma-sec per week as an average workload. This is from two to 11 times higher than the values resulting from our calculation. It follows then that a one inch concrete wall or its standard equivalent does not sufficiently protect the close vicinity of an 'average' dental office and is therefore not safe.

CONCLUSION

Architects, dentists, and owners of buildings are urged to submit the particulars of their exposure and workload conditions, including technical details of

the machine and proposed exposure techniques, as early as possible in advance of building construction. This will enable the reviewing agency to suggest a maximum of protection at minimal cost.

If, on the other hand, the particular conditions remain largely unknown, common sense and experience dictate that one must 'assume the worst' and subject the proposal to a critical analysis of some severity. If this should result in over-protection, any money paid for it may be regarded as insurance against limitation of the future expansion of the installation.

No reference has been made to protection for the dentist or operator, nor has the problem of scattered radiation been mentioned. These omissions are deliberate. If protection designed according to the principles outlined here is safe for persons working in the vicinity, it is safe for the operator, provided he retires behind the shielded or 'safe' wall. Dose rates delivered by scattered radiation in normal dental practice seldom require additional attenuation if the distances between scatterer and persons exceed six feet.

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Genetic mechanisms and anomalies in odontogenesis

G. H. Sperber,* BSc (Hons.), BDS, MS, Edmonton, Alberta

The author describes the role of genes in determining normal and abnormal dental development. He illustrates this by reference to developmental anomalies such as supernumerary, geminated, fused, distorted and odd-sized teeth. He postulates a possible mechanism for dental morphogenesis and considers the role of the environment in distorting normal tooth morphology.

L'auteur décrit le rôle des gènes dans la détermination du développement dentaire normal ou anormal. Il s'appuie sur des exemples d'anomalies de développement comme les dents surnuméraires, jumelées, déformées, ou de grosseur anormale. Il expose certains mécanismes possibles de la morphogénèse dentaire et tient compte du rôle du milieu dans l'altération de la morphologie normale de la dent.

Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows traces of her workings apart from the beaten path
—William Harvey, 1657.

The mechanisms of tooth development are little understood. Where deviations of this complex process occur, the opportunity to study some of the factors influencing odontogenesis presents itself. The occurrence of supernumerary, geminated, fused and hypoplastic teeth, among other bizarre forms, could provide insight into some of the phenomena governing dental growth and development. Malformation of any or all of the normal complement of teeth is indicative of developmental disturbances. The occurrence of supernumerary

normally shaped teeth, sometimes termed supplemental teeth, while anomalous, indicates some degree of regulated control of their morphogenesis.

Basic to an understanding of deviations from the normal dental pattern is an appreciation of why teeth are shaped as they are, why they usually occur in definite numbers, and why they are consistently located in the dental arch in the anteroposterior order of incisors, canines (cuspids), premolars (bicuspid) and molars. The shaping of the blade-like incisors, conical canines and millstone premolars and molars is, of course, the result of evolution, as is the number of representatives of each type. The control of these phylogenetically - determined factors and the order of tooth location in the dental arch is lodged in the desoxyri-



FIGURE 1 Case 1 shows a supernumerary lateral incisor interposed between left central and lateral incisors in good arch alignment.

bonucleic acid (DNA) code in the genes that are partly or wholly concerned with dental development. These repositories of evolutionary inheritance in turn dictate the ontogenetic development of the dental organs. The resultant intricate shapes of teeth represent the summation of past evolutionary forces acting upon the modern human dentition. It is not known which genes or what number of the estimated 100,000 genes¹ occurring in human chromosomes are actually concerned with dental development. The manner of their functioning in determining normal and abnormal tooth forms has still to be elucidated.

Dental maldevelopment of all forms, whether it be diminution or exaggeration of tooth size, bizarre shaping, fusion or

splitting of dental units or even total tooth absence, requires explanation of the causes of deviation from the normal developmental pathway. For this purpose, a scheme of the normal odontogenic mechanism is postulated. Examples of supernumerary tooth development, macrodontia, microdontia, gemination, fusion and hypoplasia of the dentition are described with a view to consider some possible mechanisms of their defective development.

CASE REPORTS

Supernumerary Teeth.—Case 1 portrays two supernumerary teeth, additional to a normal complement of teeth, observed clinically and radiographically in a 19 year old white male. The additional teeth were located in the left anterior maxillary and left mandibular premolar regions. The supernumerary incisor was fully formed and erupted in alignment between the left central and lateral incisors (Figure 1). The unerupted mandibular supernumerary premolar had only the crown formed when first observed (25-9-61). Its root continued to develop during the subsequent 3½ years until the tooth was extracted (9-3-65). Situated lingually to the normal premolars, it had not erupted at the time of its removal (Figure 2).

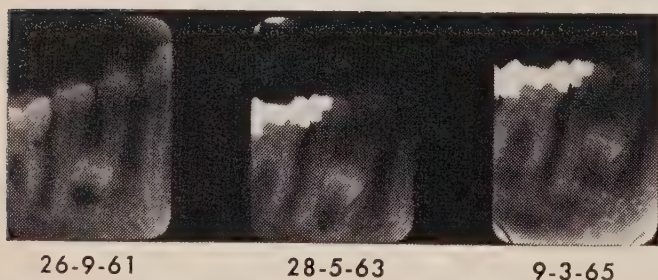


FIGURE 2 Radiographs from Case 1 depict a mandibular supernumerary premolar developing during a three and a half year period. Note the root growth and very slight eruption during this time.

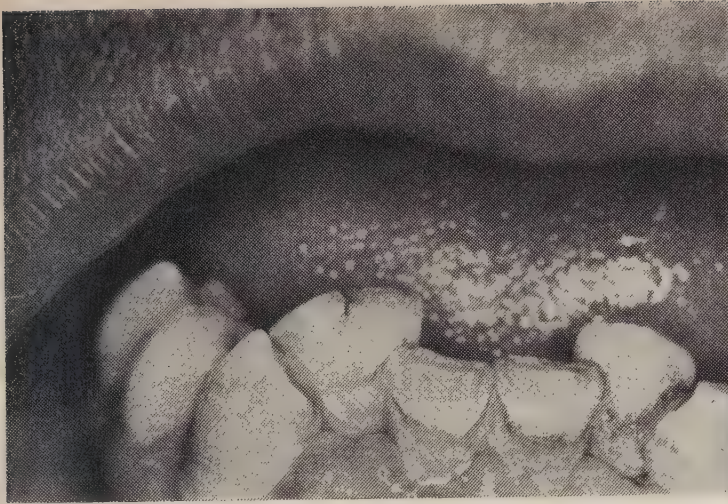


FIGURE 3 Case 2 illustrates gemination. Splitting of the mandibular right lateral incisor has resulted in an enlarged crown. The large mandibular left lateral incisor shows no such dichotomy, but contributes to the overcrowding of the incisor region. (Courtesy of K. A. McMurchy.)

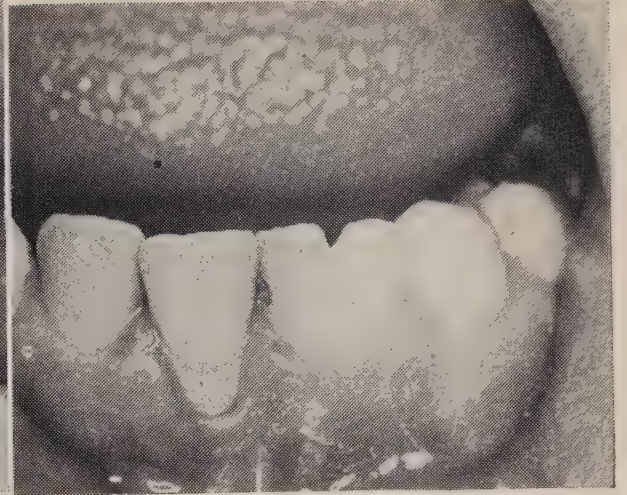


FIGURE 4 Case 3 depicts fusion of mandibular left central and lateral incisors giving the appearance of a geminated tooth. Medial to the fused teeth is the right central incisor and laterally is the deciduous canine. The subject is a 9 year old boy. (Courtesy of K. A. McMurchy.)

This case is of interest because of the occurrence of two different forms of supernumerary teeth at different stages of development. The fully formed incisor appeared to have formed within normal time limits. The delayed formation of the premolar represents development that normally takes place between the age of five and eight, but which occurred in this subject from 19 to 22 years of age. The rate of root development was within normal bounds but the few millimetres of eruption registered over $3\frac{1}{2}$ years is far short of the speed of normal tooth eruption. The eruptive forces were for unknown reasons inhibited, reduced, or possibly obstructed, although there was no impaction by contact with adjacent teeth.

True and Apparent Gemination. — Case 2 shows the splitting of the crown of a mandibular right lateral incisor. The normal complement of teeth is otherwise present (Figure 3). This represents true gemination or dichotomy of a single tooth. Closely resembling the true gemination of the preceding case is an example (Case 3) of apparent gemination of a mandibular left incisor in a 9 year old boy (Figure 4). Radiographic examination revealed the 'absence' of the left lateral incisor (Figure 5) which had almost completely fused with the central incisor to give the appearance of gemination. All other teeth in this boy were of the normal number and shape.

The split crown of the single left man-

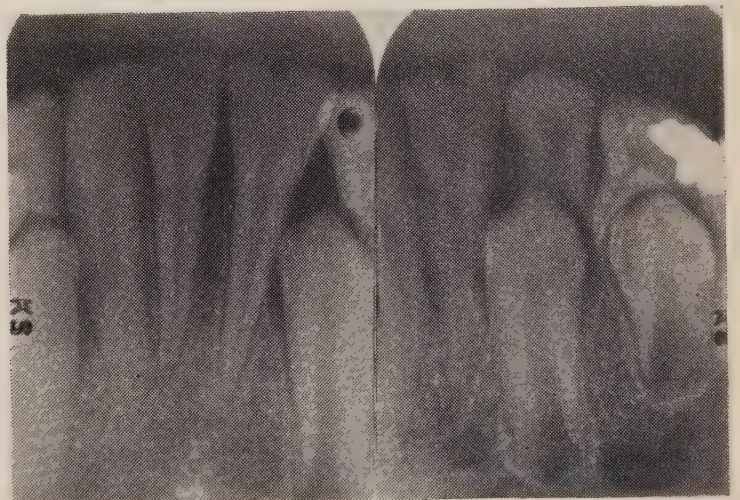


FIGURE 5 Different angled radiographs of the fused left central and lateral incisors depicted in Figure 4. The deciduous and permanent canines are seen lateral to the fused teeth. (Courtesy of K. A. McMurchy.)

dibular incisor in Case 3, being only slightly larger than either of the right incisors, could conceivably represent a true gemination of the left central (or lateral) incisor with a concomitant absence of the left lateral (or central) incisor. This circumstance is unlikely since no other teeth were missing in this boy.

Fusion. — Case 4 depicts an enormous tooth in the anterior left maxilla in the space normally occupied by the central and lateral incisors (Figure 6). This bizarre tooth approached in size the combined mesiodistal diameters of the right central and lateral incisors. It fully occupied the space of these two teeth on the left side. Its over-eruption, combined with the gingival recession in this area, enhanced its gargantuan appearance.

This tooth probably represents the fusion of the maxillary left central and lateral incisors. The presence of only one tooth in a space normally occupied by two tends to confirm this view. The possibility of this tooth resulting from gemination (dichotomy) of the central incisor, with concomitant absence of the lateral incisor, is highly unlikely. That this tooth represents gemination of the lateral incisor with absence of the central incisor is even more improbable.

Macrodonia. — The left maxillary first premolar of Case 5 was conspicuously larger than the normal sized canine and second premolar in the same quadrant (Figure 7). No other abnormalities of dental or facial development were noted, and no history of inheritance of disparate tooth sizes was obtained.

Microdonia. — In Case 6, the left maxillary second premolar was notably smaller than the adjacent normal first premolar (Figure 8). No other dental abnormalities were observed, and no history of disparate tooth-size inheritance was obtained.

Enamel Hypoplasia. — Case 7 portrays a developmental disturbance reflected by severe pitting and mottling of the cervical two-thirds of the crowns of all the permanent teeth (Figure 9). There was a

history of severe and prolonged illness of undetermined nature during the second year of life. Superimposed were extensive dental caries and gingivitis resulting from neglected oral hygiene.

DISCUSSION

The anomalies illustrated by these cases indicate, in part, the diverse kinds of dental maldevelopment that may occur. The pathogenesis of the different defects varies with the type of anomaly. The exact nature of most disturbances of normal tooth development is generally unknown. As with all biological structures, the final tooth morphology (the phenotype) is the product of its genetic directive (the genotype) modified by the environment in which it develops (Figure 10). Accordingly, malformations may stem from either inherited defective genes or from mutation in a 'normal' set of genes prior to them becoming operative. When these defective genes operate in an optimum environment for tooth development, they produce abnormal forms of teeth. If they act in an adverse environment, the resultant tooth morphology can be severely aberrant. Until more is learnt about the way in which genes act in different environments, the relative importance of defective genes and adverse environment in producing defective morphology is speculative. It is known, at least, that defective teeth can result when normal dental genes act in an adverse environment. Case 7 (Figure 9) is an example of this. Fortunately, normal genes commonly operate in an optimum environment.

Orderly development of 'normal' teeth results from a sequence of events governed by inductors, organizers, enzymes and hormones which in turn are triggered and guided by genes dictating the normal morphological pattern (Figure 11). The as yet undefined genetic complement concerned with dental development ultimately determines the presence (or absence) and morphology of teeth. Genes exert their influence collectively at a primary molecular level by directing enzyme and protein synthesis and, in turn, cellular development. Complex cytochemical reactions

then induce the responding undifferentiated tissues surrounding the tooth germ primordium to organize into the dental tissues and tooth shapes familiar to the clinician. The genes contained in the chromosomes of the cells of the dental primordium initiate the differentiation processes. Elucidation of the nature of the inductors, organizers and enzymes responsible for cellular and tissue differentiation of the seemingly uniform primordial tissues is one of the most intriguing problems of modern biology. Ultimately, the chain of orderly sequential interactions and 'feedback' mechanisms between infinitely complex genetic directives and environmental influences produces the final phenotypical expression of the definitive organ.²



FIGURE 6 Case 4 illustrates fusion of the left central and lateral maxillary incisors resulting in an enormously broad tooth. Over-eruption and gingival recession augment the enlarged appearance. All other teeth are normal. (Courtesy of K. A. McMurchy.)

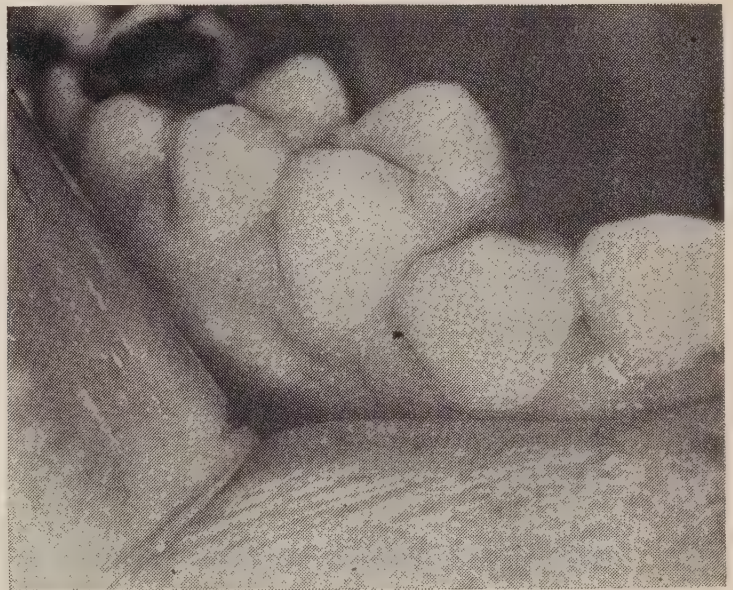


FIGURE 7 Case 5 shows macrodontia of the maxillary left first premolar. The other normal-sized teeth appear small by comparison. (Courtesy of K. A. McMurchy.)

It is postulated that two types of genes exist.³ 'Structural' genes are responsible through ribonucleic acid (RNA) intermediaries for the amino acid composition of polypeptides and proteins. 'Non-structural' operator and regulator genes control structural gene action. Chromosomal aberrations that produce malformations may result from atypical structural genes that initiate abnormal development, or from failure or mis-timing of non-structural 'operator' and regulator genes in turning 'on' or 'off' the appropriate processes as development proceeds. Evidence of repressor protein molecules attaching to

DNA molecules, thereby blocking transcription from DNA to RNA, or, in effect 'switching off' a gene has recently been presented.⁴ If the disorder is a disturbance of the complex sequential morphogenetic processes, inductive patterns may be distorted. Alternatively, interactants may mis-time or fail to make contact, or there may be loss of either inductive capacity or the ability to respond to induction.⁵ Thus, when a tooth is 'perfectly' formed, it can be assumed that the initiating and controlling factors and the timing of their actions have been in normal order.

The odontogenic epithelium derived



FIGURE 8 Case 6 demonstrates microdontia of the maxillary left second premolar. This tooth displays diminished premolar tooth form. (Courtesy of K. A. McMurphy.)



Figure 9 Case 7 depicts pitted enamel hypoplasia of the cervical two-thirds of the permanent dentition. The three cusplets in each of the incisors retain the newly-erupted condition of these teeth. Untreated caries and gingivitis reflect poor oral hygiene.

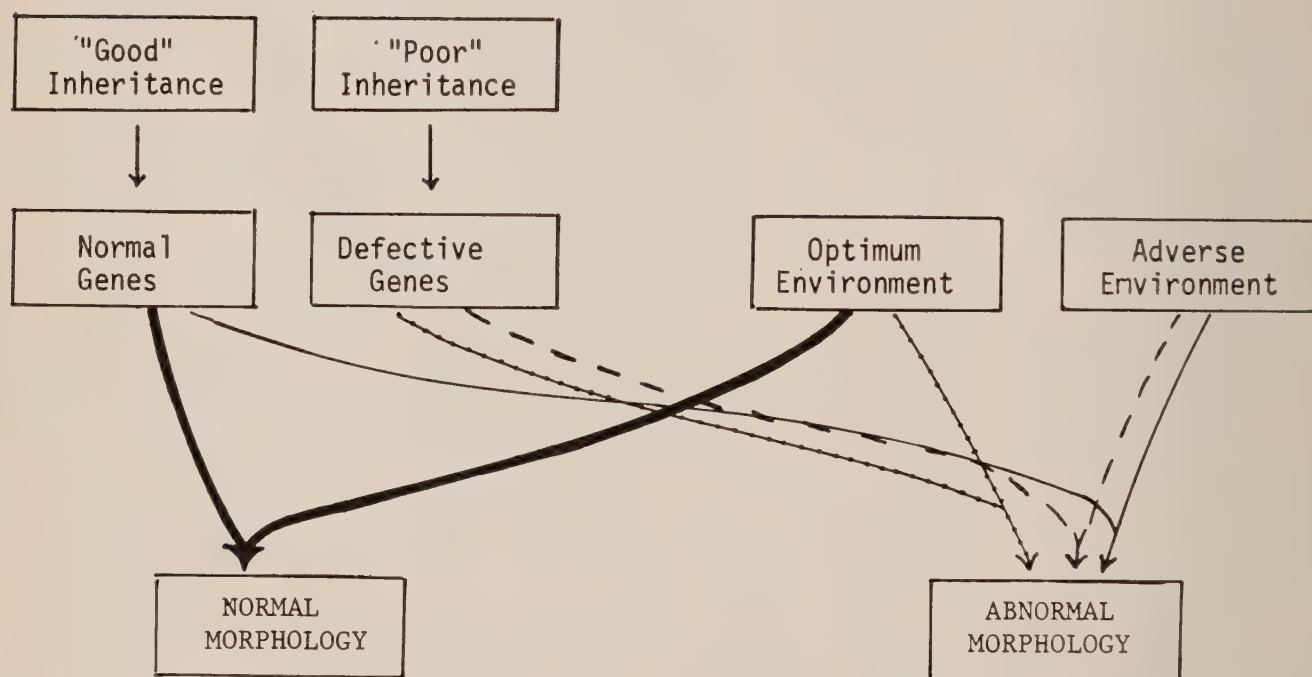


FIGURE 10 Interaction of genetic and environmental factors in development.

from the dental lamina contains all the potentialities for full tooth formation at the remarkably early 'cap' stage of development.⁶ This potentiality is retained even in disturbed environmental conditions such as artificial tissue culture media. Likewise, transplantation of apparently disorganized odontogenic epithelium into the favourable environment of living tissue will result in tooth germs

developing into their full potential.⁷ Accordingly, the ability to induce tooth formation at will by injecting odontogenic epithelium into desired sites is distinctly feasible. This is a realm of dental surgery that offers great possibilities.

The different shapes of incisors, canines, premolars and molars are determined by the sites at which these teeth develop. Initially, identical tooth germs are influ-

POLYGENIC SYSTEMS ACTING IN SEQUENTIAL COMBINATIONS AT CRITICAL TIMES

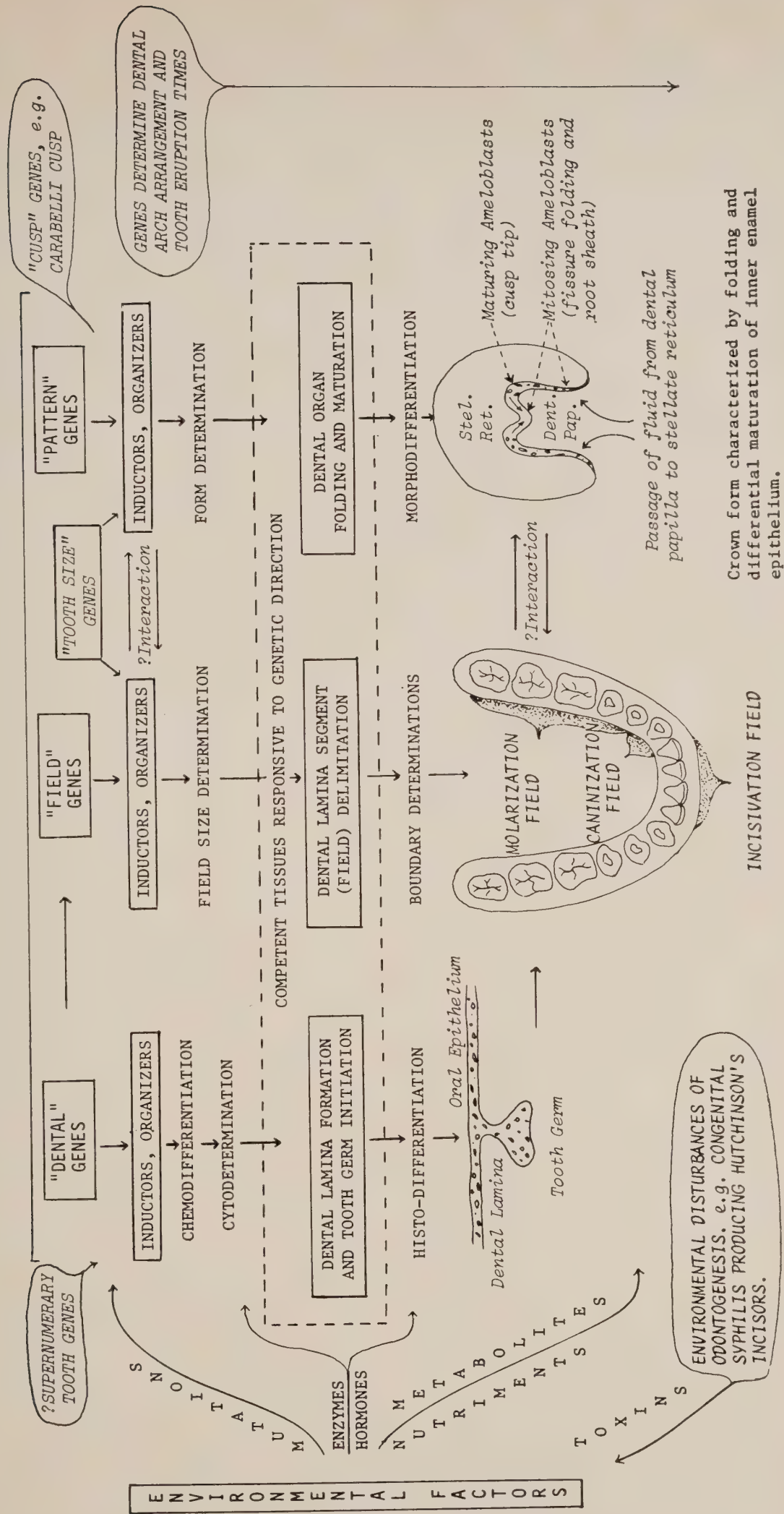


FIGURE 11 Postulated mechanisms of odontogenesis.

enced to assume different shapes by the presumably genetically controlled morphogenetic fields in which they lie.⁸ 'Field' genes probably delimit portions of the dental arches (upper and lower) into the three dominant tooth fields—so-called 'incisivation,' 'caninization' and 'molarization' fields. Differences in tooth morphology are most marked at the sites of peak influence of the morphogenetic fields, these being the central incisor, canine and first molar. The varying sizes of the three morphogenetic fields determine the number of tooth germs which develop as incisors, canines, and so forth. The narrow 'caninization' field influences a single tooth germ in each quadrant to assume the canine form, but may have some lesser influence anterior and posterior to its peak. Consequently, tooth germs anterior to the peak of the 'molarization' field may possibly be influenced by the 'caninization' field to assume a form intermediate between canines and molars — that is, premolars.

The total number of tooth germs is very likely determined by genes causing the dental lamina to bud at specific sites. The number of each type of tooth probably approximates the varying spans of the morphogenetic fields. Supernumerary tooth germs are likewise subject to these morphogenetic influences and, accordingly, tend to assume the shape of their immediate neighbours. Exceptions, as in cases of tooth transposition, would be indicative of faulty field gene function, particularly if tooth migration cannot account for the condition.

'Pattern' genes operating within the morphogenetic fields may influence the mitotic activity of the ameloblasts of the dental organs. This would cause unequal growth in the inner enamel epithelium, whose shape predicts the future form of the crown. The resultant folding of the inner enamel epithelium into the various shapes of different teeth would reflect this unequal growth.⁹ Variation in the rate of mitotic activity along the rapidly expanding inner enamel epithelium may determine where the folds occur to accommodate the proliferating epithelium within the restricting confines of the dental follicle. The inner enamel epithelium certainly grows more rapidly than

all the other tooth germ components.¹⁰ The undulations of this delicate membrane set the stage for the hard tissue patterns that follow. Apparently, mitosis first ceases at the tips of future cusps, but there is continued proliferation between the cusps and consequent folding of the epithelium into valleys to create fissures.¹¹ Ridges between cusps may originate as lines of tension within the unevenly growing epithelium.¹² The progressive arrestment of mitosis and the determination of the portions of epithelium that continue to proliferate is presumably under genetic control. The pattern of the crown thereby established reflects the dental evolutionary inheritance that is transmitted through the genes.

There is no doubt that the complexity of cusp patterns in the variously shaped teeth results from the concerted effects of numerous genes and myriad organizers, hormones and environmental influences. Some individual cusps, notably the Carabelli trait on maxillary first molars, are separately inherited¹³ and are accordingly initiated by specific genes. The passage of fluid from the dental papilla across the inner enamel epithelium, osmotically motivated by the hydrophilic polysaccharides of the stellate reticulum, may play some part in shaping the folds of the inner enamel epithelium.^{14,15} Disturbances of this passage of fluid would certainly distort the delicate membrane's folds and consequently the tooth's morphology.¹⁶

Genetic variation may be spread throughout the dentition (as in hereditary amelogenesis imperfecta) or may give rise to conditions affecting individual teeth (as in congenitally absent lateral incisors). A complex involving multiple genes, acting directly and indirectly, is responsible for the presence of supernumerary teeth.¹⁷

The dental anomalies occurring in Cases 1-6 are in all likelihood genetically determined. Whether the different cases reflect inheritance of defective 'dental' genes or whether they result from mutations cannot be ascertained. The supernumerary teeth described in Case 1 may stem from extra tooth germs abnormally budding off from the original dental lamina; alternatively, they could have re-

sulted from a splitting (dichotomy) of the adjacent original dental primordia. Their initiation appears to be genetically determined on the evidence of supernumerary teeth being inheritable. The premolariform shape of the one supernumerary tooth and incisiform shape of the other would be fortuitously determined by their morphogenetic field location. The discrepancy in the rate of development of the two supernumerary teeth may have been due to delayed initiation of the immature premolar or due to factors retarding its earlier stages of development. The supernumerary premolar's normal morphology, despite its late development, suggests that environmental factors necessary for dental morphogenesis persist well beyond the usual time for tooth formation. The supernumerary incisor was most probably initiated concurrently with the normal incisors.

The two examples of fused teeth (Cases 3 and 4) appear to represent different degrees of anomalous embryological fusion¹⁸ of usually discrete dental organs. Should fusion occur at an early stage of development, soon after commencement of crown formation, the resultant coalescence will unite almost all of the two teeth into one of nearly normal dimensions (Figure 4). Where fusion is delayed until the two crowns are very nearly formed, the subsequent union results in a tooth of nearly twice the normal dimension (Figure 6).

The occurrence of fused teeth may reflect the failure of a transitory structure, the dental lamina, to disappear. The persistence of the normally disappearing interdental lamina has been demonstrated in 'connated' (fused) incisor development in dogs.¹⁹ The persistence of this lamina seems to be genetically determined on the basis of evidence indicating inheritance of fused teeth.^{20,21} Atrophy and necrosis of primordial and initiating structures, in this case the dental lamina, is as much a part of orderly embryonic development as is the inception and growth of structures.²² Possibly, a phasing in of 'repressor' genes or protein molecules, or a phasing out of sustaining 'operator' genes may induce degeneration of the dental lamina once its purpose has been served. Malfunctioning of either of these possible sets of genes would allow

persistence of the dental lamina, thereby favouring fusion of adjacent teeth. The occurrence of supernumerary teeth may also be facilitated by a persistent dental lamina which allows the splitting off of additional tooth buds.

Gemination or the splitting of a single tooth (Case 2, Figure 3) is the presumed result of an invagination of the forming tooth bud. The degree of invagination would determine the state of a bifid crown and/or root. The invagination in the present case was in the coronal midline, providing an incomplete equal dichotomy of the crown. The invagination could also be situated laterally, splitting the crown unequally. The aetiology of this condition is obscure. The source could either be a local environmental factor that interferes with crown formation or an inherited genetic influence.²³

The examples of macrodontia and microdontia (Cases 5 and 6, Figures 7 and 8) are possibly the result of 'tooth size' genes affecting individual teeth. Tooth size is an inherited phenomenon,²⁴ and it appears from these cases that the genes may control individual teeth. This evidence is empirical, however, and more conclusive proof is required.

The enamel hypoplasia exhibited in Case 7 (Figure 9) represents adverse environmental conditions afflicting a presumably normal genetic endowment. Very active during the first two to three years of life when they produce the enamel of the permanent teeth, the ameloblasts are highly susceptible to severe metabolic disturbances usually resulting from exanthematous fevers. Disruption of amelogenesis permanently flaws that portion of the enamel formed during the disturbance. Early or continued affliction can change the shape of teeth, as demonstrated by the notched barrel-shaped Hutchinson's incisors and 'mulberry' molars resulting from congenital syphilitic infection. Maternal rubella during pregnancy may similarly disturb the foetal dentition.²⁵ Teratogenic drugs produce severe congenital defects in other organs but appear less liable to affect tooth formation. Nevertheless, disruption of odontogenesis from this source has been demonstrated.²⁶

SUMMARY

The occurrence of developmental anomalies, expressed as supernumerary, geminated, fused, distorted and odd-sized teeth has been examined for their possible maldevelopmental mechanisms. The role of genes in determining normal and abnormal dental development has been explored, and some possible mechanisms of their actions in directing dental morphogenesis have been postulated. The role of the environment in distorting normal tooth morphology has been briefly considered.

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The author thanks Dr. K. A. McMurchy for permission to use Figures 3-8.

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The time has come, the editor said, to talk of many things;

Of commas, dots and colons, quotation marks and kings.

The English do it one way, Americans make it two;

Now how will Canada make her stand? — that's up to me and you.

— Anon.

Achieving a natural appearance with immediate dentures

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Immediate dentures are contra-indicated in emotionally disturbed or mentally handicapped individuals, patients who suffer from systemic or debilitating diseases, extremely critical patients and those with severely malposed natural teeth. As a rule, only a minimal alveolectomy is performed in order to preserve as much of the denture foundation as possible. The author uses a thin labial flange for added retention. He favours hand-moulded acrylic resin teeth and duplicates the size, colour, staining characteristics and arrangement of the patient's natural teeth insofar as possible.

Les prothèses immédiates sont contre-indiquées chez les sujets souffrant de troubles émotifs et mentaux, chez les patients atteints de maladies générales ou débilitantes, chez ceux qui sont extrêmement critiques, et ceux dont les dents naturelles présentent une malposition grave. En règle générale, on n'effectue qu'une alvéolectomie minime, afin de conserver le maximum de crête alvéolaire. Pour plus de rétention, l'auteur emploie une gencive du côté labial. Il est partisan des dents de résine moulées à la main, et il reproduit dans la mesure du possible la dimension, la couleur, les décolorations et la disposition des dents naturelles du patient.

Prosthodontists have developed several types of complete dentures intended for limited service. Among these, the immediate denture has attained the highest level of usefulness. By definition, an

immediate complete denture is a dental prosthesis constructed to replace the lost dentition and associated structures of the maxilla and/or mandible and inserted immediately following removal of the

remaining natural teeth.¹ The requirements for this phase of prosthodontic treatment should be as exacting as for any complete denture. The fabrication of an immediate denture demands even more care, skill and artistic knowledge than that of the conventional denture. A sound diagnosis, therefore, determines the indication or contra-indication for an immediate denture.

Other types of limited service dentures, such as temporary, transitional, treatment and throw-away dentures, share a common denominator with the immediate denture: they all require replacement, re-basing or relining within a short period of time. However, the terms temporary, transitional, treatment, and throw-away dentures should not be construed as synonyms for the immediate denture.

A temporary denture is "intended to serve a very short time in a temporary or emergency situation."² This denture need not fulfil the requirements of an immediate denture. Such a denture may be required at any time. For example, a temporary denture may be inserted following surgery for a complete denture patient when the existing denture can no longer function. The term is unfortunate because all dentures are temporary.

A transitional denture is one that serves during the period immediately following the removal of the natural teeth.² The difference between immediate and transitional dentures lies in the time of insertion. The immediate denture is inserted immediately after removal of the remaining teeth. The transitional denture may be inserted after a short interval following the removal of the remaining teeth. Implicit in the term transitional is the idea of attaining a particular goal through a limited service. For example, patients who require extensive surgery prior to denture insertion may be educated by a 'transitional' service. The two terms — temporary denture and transitional denture — have attained recognition and acceptance.²

A treatment denture generally serves aesthetic rather than functional needs. Patients with unsightly malposed natural anterior teeth may benefit from alteration of the anterior tooth arrangement in a subsequent denture. To this end, a trial or

treatment denture would help to indicate the extent of the desired change. A treatment denture, if recommended after extensive surgery, is really a temporary or transitional denture.

The 'throw-away' denture conveys the impression of an appliance that has not been fabricated according to exacting standards. Any denture fabricated like an immediate denture can preserve the patient's appearance by imitating the natural tooth position, tooth size, and tooth colour. Such detail would be wasted in a throw-away denture.

Almost all patients who seek immediate complete dentures do so to avoid the altered facial appearance which would reveal tooth loss to their friends and associates.³ The psychological and aesthetic value of a dental prosthesis is self-evident. Very few individuals can afford the embarrassment of maintaining normal social and business activities while in an edentulous state. Immediate dentures eliminate the distressing interval when a patient has neither natural nor artificial teeth.

We have materials that permit exact duplication of the natural dentition. Given the matchless guidance provided by the patient's natural teeth, the dentist has only to use his innate artistic skill if immediate complete denture service is to become a source of personal satisfaction. Complaints over immediate dentures generally stem from dissatisfaction with the cosmetic results or improper function. Grievances may originate from (1) improper case selection and improper diagnosis; (2) inadequate instruction of the patient prior to extraction of the natural teeth; or (3) improper registration of jaw relations.

The fact that a patient is available for the necessary appointment and can afford to pay for the service is not sufficient justification for embarking on immediate dentures. His physical and mental health must be considered before deciding upon such treatment. Immediate dentures are contra-indicated for patients who are emotionally disturbed or whose mental capacity does not allow them to accept their share of responsibility for this procedure. Systemic and debilitating diseases are further contra-indications.

Aesthetics and phonetics are always influenced by a denture in the patient's mouth. The extent of this effect, in the case of an immediate denture, cannot be predicted until the appliance is placed in the mouth. With an extremely critical patient, an immediate denture is inadvisable, especially when major changes in position of the anterior teeth are necessary.

RELATIONSHIP OF UPPER AND LOWER ANTERIOR TEETH

In a Class I occlusal relationship with average vertical and horizontal overlap, replacement of natural by artificial teeth presents no mechanical or aesthetic problem.

In a Class II anterior relationship with an average vertical dimension of occlusion, the artificial teeth should occupy the same relative position as the natural teeth. The profile is not altered. Sometimes a dentist is persuaded to move maxillary teeth lingually and mandibular teeth labially in order to change a Class II relationship to a Class I relationship. This is unwise because comfort, phonetics and appearance are thereby adversely affected. The patient must be told that only small changes can be made in the anterior teeth to enhance appearance.

A Class III relationship presents no cosmetic or phonetic problems if the artificial teeth are placed in the position previously occupied by the natural teeth. Difficulties ensue when upper anterior teeth are positioned labially in order to improve facial appearance and support the upper lip. The resulting upper denture is unstable and difficult to retain.

Deep anterior vertical overlap may be duplicated provided there is adequate horizontal overlap. Otherwise, especially when there is no loss of vertical dimension and the teeth exhibit no pathological migration, one must select slightly shorter artificial teeth. This entails reduction of the amount of vertical overlap and minimal alteration of the anteroposterior relationship of the upper and lower teeth. Although we can perpetuate some degree of vertical overlap, the lingual surfaces

of the maxillary teeth must not touch the labial-incisal surfaces of the mandibular teeth when in centric occlusion.

VERTICAL DIMENSION

The vertical dimension of occlusion of the remaining dentition does not necessarily determine the vertical dimension of occlusion which should be reproduced in the dentures.

Attrition of the tooth surfaces is a dangerous criterion for arbitrarily increasing the interocclusal distance. The alveolar process and/or teeth can extrude and migrate and thus maintain a physiologically accepted interocclusal distance. The mere appearance of overclosure (too small an occlusal vertical dimension) is not an adequate indication for increasing the interocclusal distance. A physiologically acceptable vertical dimension of occlusion must be selected for each patient if the denture is to be successful.

SURGICAL PREPARATION OF THE MOUTH

The surgical preparation of the mouth for immediate dentures is known as alveolotomy, alveolectomy and alveoplasty. Formerly, when vulcanite was the only base material available, it was necessary to sacrifice a part or all of the labial cortical plate from first bicuspid to first bicuspid. This is no longer required. The preservation of the denture foundation is more important than creating 'good-looking' dental cripples. Generally, only a minimal alveolectomy is planned. Consequently, the marginal gingival portion of the cast is reduced starting at the cervical area of the teeth. From this point onward, the gingival portion is trimmed in ever-diminishing thickness up to a distance of about 5 mm. beyond the gingival crest. Slight compression of the sockets provides further relief. Some reduction of the cast is always necessary; otherwise the labial gingival portion of the denture will seem excessively bulky. A stone duplicate of the trimmed cast will assist the oral surgeon. A clear plastic surgical template is not needed since the relief of the stone

cast is equivalent to little more than the contour of the free marginal gingiva.

LABIAL FLANGE

Controversy persists over the desirability of a labial flange in a maxillary immediate denture. Some dentists omit the flange because of its detrimental cosmetic effect and because it can be a constant source of tissue irritation. Others make an exceedingly thin labial flange that does not confer fullness to the upper lip. They advocate a flange for better retention of the denture base. A third group recommends the so-called 'flange of continuous growth.' Initially, this flange extends only partly along the labial surface of the maxillary ridge. Subsequently, the flange is extended as resorption takes place.⁴

I prefer a thin labial flange for immediate complete dentures. The flange should be particularly thin in its superior one-third. The actual thickness is established at the time of impression making. A flange developed in this way offers improved retention without impairing the aesthetic qualities of the denture. As previously stated, when there are severe undercuts in the anterior portion of the maxillary ridge crest, a true immediate complete denture is contra-indicated.

THE TEETH

A great sense of accomplishment is gained from duplicating the patient's natural teeth. For this purpose I prefer hand-moulded acrylic resin teeth. These teeth are easy to make. The dentist can make them in about an hour and the results are far superior than can be attained by using stock teeth. The individual size, colour and stains of every tooth can be dupli-

cated. Arranging these teeth to correspond with the patient's anterior teeth can make immediate dentures truly rewarding for both patient and dentist.⁵

CONCLUSION

To achieve a life-like appearance with immediate dentures, "make the teeth look like natural teeth."⁶ Once teeth are extracted, nature's guide is lost forever and there is nothing left to copy. Not every patient can be provided with immediate dentures, particularly when natural teeth are so severely malposed as to be disfiguring. Even then, however, natural tooth form and colour can be recorded for use with a later denture. After all, a single natural central incisor is a better guide for tooth selection than all the mould guides ever made.

Immediate denture service need not be an aesthetic problem even though it is impossible to have the conventional try-in to assess the overall cosmetic effect. Careful selection of cases, repeated and detailed discussions with the patient about the proposed dentures, duplicating the patient's natural teeth and then placing the artificial substitutes in exactly the same position as the natural teeth, will prove rewarding for the dentist and will assure a grateful patient.

*Chief, Dental Service, Veterans Administration Centre, Wadsworth, Kansas, and associate clinical professor, prosthodontics, University of Missouri at Kansas City School of Dentistry.

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Veterans Administration Centre

Dental Research in Canada, 1966

Council on Research

The first survey of the status of dental research in Canada was conducted by the Council on Research in 1954. Other surveys followed in 1959 and 1964 at five year intervals. Because dental research appeared to be expanding so rapidly, it was decided in April 1966 to conduct another survey after an interval of only two years, and that further surveys should be conducted on an annual basis thereafter.

Accordingly, questionnaires were sent to all dental schools and directors of dental public health in Canada. Results are shown in Tables 1-4.

It is readily evident from the comments of several schools that the type of questionnaire used for this and other surveys should be modified. With the current rapid expansion in dental education and the concomitant development of a variety of patterns of integration with medical schools, it is no longer possible to isolate such factors as space, and sometimes even personnel, and designate them strictly for dental research.

Despite certain limitations in the data, the current survey clearly demonstrates the continued and rapid upward trend in dental research in Canada. Figures are included from only seven schools. None are reported for the Faculty of Dentistry, University of Western Ontario, which at the time of the survey was still in the planning stage. Suffice it to say that re-

search is expected to play a significant role in the activities of that school, as it does in all others.

Only a few replies to the questionnaire were received again from dental public health officers across the country. These indicated that, with one or two exceptions (notably in western Canada), little research is being carried out by dental public health agencies.

The most useful data for comparative purposes were provided by the dental schools, and only these are shown in the accompanying tables.

RESEARCH PERSONNEL

The number of professionally qualified people doing research in the dental schools of Canada has increased by 18 since 1964 (Table 1). Of this number, 11 are dentists who have taken graduate training leading to a research degree. This increase reflects not only the fact that one more school is included in the present report than that of two years ago, but also that new personnel has been added to the staffs of existing schools.

The number of professional personnel now engaged in research in Canadian dental schools is more than two and one-half times greater than seven years ago, although only two new schools have become active during the same period.

TABLE 1 Number of research personnel in Canadian dental schools, 1954-66.

Year	School	Professional personnel				Technical personnel
		DDS only	DDS plus research degree	Research degree only	Total	
1954	5 schools*	10	11	9	30	13
1959	5 schools*	3	21	4	28	13
1964	6 schools*	6	41	10	57	38
1966	Alberta	2	7	1	10	5
	British Columbia	3	7	1	11	2
	Dalhousie	1	4	0	5	1
	Manitoba	1	8	5	14	19
	McGill	3	2	2	7	2
	Montreal	0	7	1	8	5
	Toronto	1	17	2	20	15
1966	Total	11	52	12	75	49

*Details for 1954 in CDA Transactions 1954-55:152; for 1959 in CDA Transactions 1960:152; for 1964 in CDA Transactions 1965:165.

RESEARCH SPACE AND EQUIPMENT

The amount of space allocated for research in the dental schools increased significantly between 1964 and 1966, primarily because of provision of additional space in the schools reporting in 1964 (Table 2). The University of British Columbia in 1966 added 1,000 square feet to the total, and this was provided in non-dental school buildings.

Apparently, the schools are more adequately equipped for research than they were in 1964. Half of the six schools that reported indicate that they are reasonably well equipped. Two years ago only two of the six so reported.

GRADUATE AND POSTGRADUATE STUDENTS

Perhaps the most significant observation from the 1966 survey is the number of graduate and postgraduate students in Canadian dental schools (Table 3). This has tripled (from 31 to 90) in the two years between 1964 and 1966. Approximately half of the 90 students registered in 1966 were enrolled in courses leading to a higher clinical qualification, and about one-third were enrolled in programs essentially leading to research competence.

Presumably these numbers will not decrease in the future; in fact they will likely increase, though perhaps at a some-

TABLE 2 Research space and equipment in Canadian dental schools, 1954-66.

Year	School	Research space (sq. ft.)		Equipment	
		Dental school	Other	Adequate	Inadequate
1954	5 schools*	4,600	3,117	2	3
1959	5 schools*	28,450	1,700	3	2
1964	6 schools*	36,920	2,930	2	4
1966	Alberta	3,120	530		X
	British Columbia		1,000	—	—
	Dalhousie	1,100	1,300		X
	Manitoba	8,500	300	X	
	McGill	4,328	486	X	
	Montreal	8,000	—	X	
	Toronto	25,000	400		X
	Total	50,048	4,016	3	3

*Details as for Table 1.

TABLE 3 Graduate and postgraduate students in Canadian dental schools, 1954-66.

Year	School	Number of students					
		Graduate			Postgraduate		Total
		PhD	MS		Clinical specialty	Other	
			Clinical	Other			
1954	5 schools*	—	7	—	—	—	7
1959	5 schools*	—	—	6	12	3	21
1964	6 schools*	3	2	9	13	4	31
1966	Alberta	—	—	3	—	—	3
	British Columbia	—	—	—	—	—	—
	Dalhousie	—	—	—	—	—	—
	Manitoba	5	1	10	0	1	17
	McGill	1	—	1	—	—	2
	Montreal	—	13	—	—	—	13
	Toronto	0	—	14	31	10	55
1966	Total	6	14	28	31	11	90

*Details as for Table 1.

TABLE 4 Estimated research expenditure in Canadian dental schools, 1954-66.

Year	School	Source of funds (\$)					Total \$
		National Research Council	Medical Research Council	Dept. of National Health and Welfare	Industry	Other	
1954	5 schools*	26,870	—	30,000	—	20,000	76,870
1964	6 schools*	194,400	—	48,500	44,700	59,800	347,400
1966	Alberta	36,050	6,800	22,500	20,000	16,000	101,350
	British Columbia	18,720	—	11,410	3,700	17,130	50,960
	Dalhousie	7,000	—	—	—	1,500	8,500
	Manitoba	151,000	3,700	22,500	10,000	5,200	192,400
	McGill	9,200	—	—	2,000	—	11,200
	Montreal	13,000	—	35,000	—	2,000	50,000
	Toronto	151,918	—	27,443	—	16,879	196,240
1966	Total	386,888	10,500	118,853	35,700	58,709	610,650

*CDA Transactions 1965:165.

what slower rate. In any case, it is certain that a number of qualified individuals will seek academic employment in the near future, and funds must be provided to support them. An increased need for research funds, particularly in the form of postdoctoral fellowship awards, is obvious.

RESEARCH EXPENDITURE

The amount of money spent on dental research during 1966 through extramural grants is simply another reflection of the

rapid expansion occurring in Canada (Table 4). Between 1964 and 1966 research spending in dental schools more than doubled from \$247,000 to nearly \$611,000. As in the past, most of the money was provided through the National Research Council of Canada, although the funds for dental research from the Department of National Health and Welfare have shown the greatest relative increase in the two year period under comparison.

One important source of support, not shown in Table 4 and often completely overlooked, is the indirect support for re-

search provided by the universities of which the dental schools are a part. A dollar estimate of the contribution of the universities in terms of space, light, heat, power, staff salaries, and so forth may prove to be even greater than the value of extramural grants.

Comparison of the extramural support for dental research from 1954 to the present year indicates that dental research is on an upswing approximating the magnitude of acceleration in medical research

some years ago. This should continue.

It is interesting to compare the actual extramural support for dental research in 1966 with estimates made a few years ago. If the current trend continues, research spending in dentistry should easily reach the high estimate of \$1,125,000 by 1968 that was predicated by the Canadian Dental Association in its brief to the Royal Commission on Health Services in 1962. Indeed, the CDA figure may prove to be quite accurate.

La recherche dentaire au Canada, 1966

Conseil de la recherche

La première enquête sur l'état de la recherche dentaire au Canada a été effectuée par le Conseil de la recherche en 1954. D'autres ont suivi à cinq ans d'intervalle en 1959 et 1964. Mais la recherche dentaire se développait si rapidement qu'il fut décidé, en avril 1966, d'effectuer une nouvelle enquête après un intervalle de deux ans seulement et que les autres enquêtes seraient à l'avenir annuelles.

Des questionnaires furent donc envoyés à toutes les facultés dentaires et à tous les directeurs de l'hygiène dentaire publique du Canada. Les réponses figurent aux tableaux 1 à 4.

D'après les remarques apportées par plusieurs facultés, il est bien évident que le genre de questionnaire employé pour cette enquête et d'autres devrait être modifié. Actuellement, l'expansion rapide de l'enseignement dentaire et l'apparition en même temps de divers modes d'intégration aux facultés de médecine ne permettent plus d'isoler des facteurs comme la superficie ni même parfois le personnel, et de les ranger dans la recherche dentaire au sens strict.

Malgré certaines imperfections des données, la présente enquête démontre clairement le mouvement d'expansion rapide et

continue de la recherche dentaire au Canada. Les chiffres donnés concernent seulement sept facultés. On n'en possède pas pour la Faculté de chirurgie dentaire de l'Université Western Ontario, qui à l'époque de l'enquête n'existait qu'à l'état de projet. Il suffira de dire que l'on s'attend à ce que la recherche occupe une place importante dans les activités de cette faculté, comme c'est le cas pour toutes les autres.

Les réponses des fonctionnaires de l'hygiène dentaire publique de tout le pays ont été encore une fois rares. Elles indiquent, à une ou deux exceptions près (surtout dans l'Ouest du Canada) que les organismes d'hygiène dentaire publique effectuent peu de recherche.

Les meilleurs éléments de comparaison ont été fournis par les facultés dentaires et ceux-là seuls figurent dans les tableaux ci-joints.

LE PERSONNEL DE RECHERCHE

Le nombre de chercheurs professionnels qualifiés dans les facultés dentaires du Canada a augmenté de 18 depuis 1964

(Tableau 1). Sur ce nombre, 11 sont des dentistes qui ont effectué des études graduées conduisant à un diplôme en recherches. Cette augmentation n'est pas due seulement au fait que le présent rapport compte une faculté de plus que le rapport d'il y a deux ans, mais aussi à l'accroissement du personnel des écoles existantes.

Actuellement, le nombre de chercheurs professionnels dans les facultés dentaires canadiennes est plus d'une fois et demie plus élevé qu'il y a sept ans, bien que l'on compte seulement deux facultés de plus au cours de la même période.

SUPERFICIE ET ÉQUIPEMENT DE RECHERCHE

La superficie consacrée à la recherche dans les facultés dentaires s'est considérablement accrue entre 1964 et 1966, principalement à cause de l'augmentation de la superficie dans les facultés qui ont répondu en 1964 (Tableau 2). L'Université de Colombie britannique a ajouté 1,000 pieds carrés au total en 1966, pris dans des locaux qui ne faisaient pas partie de la faculté dentaire.

Apparemment, les facultés sont mieux équipées pour la recherche qu'elles ne l'étaient en 1964. La moitié des six écoles qui ont répondu indiquent qu'elles sont assez bien équipées. Il y a deux ans, c'était le cas de deux seulement sur les six.

ÉTUDIANTS GRADUÉS ET POST-UNIVERSITAIRES

Le nombre d'étudiants gradués et post-universitaires des facultés dentaires canadiennes constitue peut-être l'observation la plus importante de l'enquête de 1966 (Tableau 3). Il a triplé (de 31 à 90) entre 1964 et 1966. Environ la moitié des 90 étudiants inscrits en 1966 suivaient des cours conduisant à une qualification clinique supérieure et environ un tiers suivaient des cours essentiellement destinés à former des chercheurs.

On présume que ces chiffres ne diminueront pas à l'avenir; il est même probable qu'ils augmenteront quoique à un rythme moins rapide. Il est en tout cas certain que de nombreux individus qualifiés rechercheront un emploi universitaire dans un proche avenir et que des fonds devront leur être consacrés. Le besoin accru de fonds de recherche, particulièrement sous la forme de bourses d'études post-doctorales, est évident.

LES DÉPENSES DE RECHERCHE

Les sommes consacrées à la recherche dentaire en 1966 et provenant de dons extra-universitaires donnent également l'image de l'expansion rapide qui se produit au Canada (Tableau 4). Entre 1964 et 1966, les dépenses de recherche des

TABLEAU 1 Nombre de chercheurs dans les facultés de chirurgie dentaire canadiennes, 1954-66.

Année	Faculté	Personnel professionnel				Personnel technique
		DDS seul	DDS plus diplôme en recherches	Diplôme en recherches seul	Total	
1954	5 facultés*	10	11	9	30	13
1959	5 facultés*	3	21	4	28	13
1964	6 facultés*	6	41	10	57	38
1966	Alberta	2	7	1	10	5
	Colombie britannique	3	7	1	11	2
	Dalhousie	1	4	0	5	1
	Manitoba	1	8	5	14	19
	McGill	3	2	2	7	2
	Montréal	0	7	1	8	5
	Toronto	1	17	2	20	15
1966	Total	11	52	12	75	49

*Détails pour 1954 dans les Délibérations de l'ADC 1954-55:154; pour 1959 dans les Délibérations de l'ADC 1960:205; pour 1964 dans les Délibérations de l'ADC 1965:145.

TABLEAU 2 Superficie et équipement consacrés à la recherche dans les facultés dentaires canadiennes, 1954-66.

Année	Faculté	Superficie (pieds carrés)		Équipement	
		Faculté dentaire	Autres	Suffisant	Insuffisant
1954	5 facultés*	4,600	3,117	2	3
1959	5 facultés*	28,450	1,700	3	2
1964	6 facultés*	36,920	2,930	2	4
1966	Alberta	3,120	530		X
	Colombie britannique		1,000	—	—
	Dalhousie	1,100	1,300		X
	Manitoba	8,500	300	X	
	McGill	4,328	486	X	
	Montréal	8,000	—	X	
	Toronto	25,000	400		X
	Total	50,048	4,016	3	3

*Pour détails voir note du Tableau 1.

TABLEAU 3 Etudiants gradués et post-universitaires dans les facultés dentaires canadiennes, 1954-66.

Année	Faculté	Nombre d'étudiants					
		Gradués			Post-universitaires		Total
		PhD	MS		Spécialité clinique	Autres	
			Clinique	Autres			
1954	5 facultés*	—	7	—	—	—	7
1959	5 facultés*	—	—	6	12	3	21
1964	6 facultés*	3	2	9	13	4	31
1966	Alberta	—	—	3			3
	Colombie britannique	—	—	—	—	—	—
	Dalhousie	—	—	—	—	—	—
	Manitoba	5	1	10	0	1	17
	McGill	1	—	1	—	—	2
	Montréal		13				13
	Toronto	0	—	14	31	10	55
1966	Total	6	14	28	31	11	90

*Pour détails voir note du Tableau 1.

facultés dentaires ont plus que doublé, passant de \$247,000 à près de \$611,000. Comme par le passé, la plupart des fonds ont été fournis par le Conseil national de la recherche du Canada, bien que ceux du ministère de la Santé nationale et du Bien-être social aient accusé la plus forte augmentation relative au cours de la même période de deux ans.

Les universités dont les facultés dentaires font partie accordent à la recherche un important soutien indirect qui n'apparaît pas au tableau 4 et qui souvent passe totalement inaperçu. Chiffrée en dollars, la contribution des universités

sous forme de locaux, d'électricité, de chauffage, de salaires du personnel, etc., pourrait se révéler supérieure aux dons extra-universitaires.

La comparaison des dons extra-universitaires pour la recherche dentaire de 1954 à l'année présente indique que la recherche dentaire connaît une expansion qui approche celle que l'on a observée dans la recherche médicale il y a quelques années. Cette tendance devrait se maintenir.

Il est intéressant de comparer le soutien extra-universitaire accordé en 1966 à la recherche dentaire avec les prévisions faites il y a quelques années. Si la ten-

TABLEAU 4 Dépenses approximatives de recherche dans les facultés dentaires canadiennes, 1954-66.

Année	Faculté	Origine des fonds (\$)					Total (\$)
		Conseil national de la recherche	Conseil de la recherche médicale	Ministère de la Santé nationale et du Bien-être social	Industrie	Autres	
1954	5 facultés*	26,870		30,000		20,000	76,870
1964	6 facultés*	194,400		48,500	44,700	59,800	347,400
1966	Alberta	36,050	6,800	22,500	20,000	16,000	101,350
	Colombie britannique	18,720		11,410	3,700	17,130	50,960
	Dalhousie	7,000				1,500	8,500
	Manitoba	151,000	3,700	22,500	10,000	5,200	192,400
	McGill	9,200			2,000		11,200
	Montréal	13,000		35,000		2,000	50,000
	Toronto	151,918		27,443		16,879	196,240
1966	Total	386,888	10,500	118,853	35,700	58,709	610,650

*Délibérations de l'ADC 1965:145.

dance actuelle se poursuit, les dépenses en recherches dentaires devraient facilement atteindre les \$1,125,000 que l'Association dentaire canadienne avait prédits pour

1968 dans son mémoire à la Commission d'enquête sur les services de santé en 1962. En fait, le chiffre de l'ADC pourrait se révéler très juste.

La chirurgie dentaire: profession féminine • L'expérience a montré que la femme peut très bien supporter l'effort physique requis par l'exercice dentaire et ses aptitudes naturelles pour les travaux minutieux, ses goûts artistiques, sa patience avec les enfants la rendent particulièrement apte à jouer un rôle important dans cette spécialité. — *Le Chirurgien-dentiste.*

L'Association

Le budget 1968 sera encore déficitaire

Le Conseil des Gouverneurs a établi un budget de \$281,670 pour 1968. Pour en arriver à ce chiffre, le Conseil a dû une fois de plus réduire au strict minimum les dépenses proposées, et restreindre plusieurs projets importants à cause du manque de fonds. Malgré ces économies, le budget accusera un déficit de \$2,570, les recettes prévues n'atteignant que \$279,100. En outre, le budget ne prévoit pas le salaire de l'employé supplémentaire à temps partiel du Comité du recrutement national, les frais des conseillers du Comité des services dentaires, le Bureau national délivrant le certificat d'assistante dentaire, et le groupe spécial chargé d'élaborer un programme d'hygiène dentaire pour les enfants — projets que le Conseil a déjà approuvés.

Dans son rapport du 13 mai, le trésorier de l'ADC, G. M. Dewis, a fait remarquer que \$25,000 devraient être retirés du fonds de réserve de l'Association pour faire face aux dépenses de fonctionnement de l'année dernière. Avec \$217,241, le fonds de réserve est inférieur au budget annuel de l'Association (alors que le Conseil a recommandé que le fonds de réserve soit le double du budget annuel) et se trouve très au-dessous du niveau normal pour une association comme l'ADC.

Canada

Les examens d'admission au Collège royal des chirurgiens dentistes seront étendus aux domaines qui ne sont pas des spécialités

Le Collège royal des chirurgiens-dentistes du Canada établira un système grâce au-

quel ses examens d'admission pourront être présentés par les dentistes ayant terminé des études théoriques poussées dans les domaines qui ne sont pas reconnus comme spécialités par l'Association dentaire canadienne. L'article 3d de la Loi sur le Collège royal des chirurgiens dentistes donne au Collège le pouvoir d'assurer la reconnaissance et la nomination des dentistes qui possèdent des qualifications spéciales dans des branches non reconnues en tant que spécialités. Les cours d'appoint, les préceptorats, les internats par rotation ne sont pas considérés comme équivalant à une partie des études théoriques exigées.

A la demande de quelques-uns des bureaux provinciaux de réglementation professionnelle, le Collège royal étudie la possibilité de faire de l'examen Ie Partie un critère pour le certificat de spécialiste. Agissant en qualité d'agent des organismes de réglementation concernés, le Collège mettrait les résultats de l'examen à la disposition des organismes provinciaux.

Afin d'assurer des liens plus étroits entre l'Association dentaire canadienne, le Collège royal et le Comité des spécialistes et des spécialités de l'ADC, on a décidé d'échanger des représentants. Le Collège royal présentera également un communiqué d'information aux réunions annuelles du Conseil des Gouverneurs de l'ADC.

Pour mettre en vigueur ces décisions, le conseil du Collège royal a adopté le 13 mai les résolutions suivantes, voulant:

1. Que le Collège royal des chirurgiens-dentistes du Canada se déclare désireux d'aider les provinces à émettre les certificats de spécialistes dentaires et que, de bonne foi, il demande aux organismes provinciaux de réglementation professionnelle d'examiner la possibilité d'accepter les résultats de l'examen Ie Partie de ce Collège comme critère de spécialisation dans chaque province particulière. En

outre, étant donné que le Collège royal reconnaît les domaines actuellement désignés par l'Association dentaire canadienne comme spécialités en art dentaire, qu'il demande à chaque organisme provincial d'examiner à nouveau cette question en vue d'uniformiser les spécialités dans tout le Canada.

2. Que le Collège royal des chirurgiens-dentistes du Canada reconnaisse la catégorie mentionnée dans l'Article 3d de la Loi (projet de loi S-44) et, par conséquent, assure des examens Ie Partie et Iie Partie, en vue de reconnaître et de désigner les dentistes qui possèdent des qualifications spéciales dans les branches non reconnues comme spécialités. Il est également proposé que le Comité de la constitution et des règlements modifie les règlements à cette fin.

3. Qu'un lien soit établi entre le Collège royal et le Comité des spécialistes et des spécialités de l'Association dentaire canadienne, au moyen d'un échange de représentants.

L'ADC rend les honneurs au gagnant d'expo-sciences

Soixante-treize finalistes de 27 expo-sciences régionales dans tout le Canada ont participé à la sixième expo-sciences nationale qui s'est tenue à l'Université Laval, à Québec, du 10 au 12 mai. Le gagnant du prix de l'Association dentaire canadienne était David Raymond, élève en onzième année à Sylvan Lake, Alberta.

L'Association dentaire canadienne est l'un des commanditaires de la Fondation scientifique de la jeunesse qui encourage des activités scientifiques hors programme et organise l'expo-sciences annuelle. Cette année, André Grenon de Québec représentait l'Association au jury.

Chronique internationale

Cours cliniques au congrès argentin

L'Association dentaire argentine offrira plusieurs cours de courte durée avant et après sa quinzième réunion internationale

qui se tiendra à Mar del Plata, Argentine, du 6 au 9 décembre. Les professeurs qui donneront les cours et les sujets qui y seront traités sont les suivants: le Dr R. E. McDonald, Université d'Indiana, pédodontie; le Dr S. P. Ramfjord, Université du Michigan, occlusion; le Dr K. Steinhardt, Université d'Erlangen, Allemagne de l'Ouest, chirurgie; le Dr L. J. Baume, Université de Genève, Suisse, endodontie; le Dr R. E. Moyers, Université du Michigan, orthodontie et le Dr D. A. Boyd, Université d'Indiana, dentisterie opératoire.

On peut obtenir de plus amples renseignements sur ces cours en écrivant au Dr R. H. Canzani, 959 Junin, Buenos Aires, Argentine.

Un autre cours implantaire à Paris du 16 au 19 novembre

Le Centre international de recherche sur les implants en dentisterie, à Paris, France, offrira un autre cours d'implantologie qui durera trois jours, du 16 au 19 novembre. Le nombre des inscriptions est limité. Ce cours aura lieu à l'hôpital Lariboisière, comme celui du 6 au 8 juillet. Le programme couvrira toutes les techniques implantaires. Les frais d'inscription sont de \$200 payables en deux tranches: \$100 qui accompagneront la demande d'inscription et le solde à régler en octobre. Il est conseillé de s'y inscrire rapidement en écrivant au Dr R. Cherchève, 2 rue Ambroise Paré, Paris, France.

Un deuxième cours de Edgewise en France

L'orthodontiste parisien, le Dr R. X. O'Meyer a annoncé les dates d'un second cours européen de spécialisation en thérapie Edgewise. Ce cours sera donné près de Paris, au centre culturel de Royumont, pendant les trois semaines du 15 juillet au 3 août 1968. Le cours comprendra la théorie et la pratique (tables cliniques) sur les typodonts. Les participants au cours doivent avoir une bonne connaissance de l'anglais et de l'ortho-

dontie. On peut obtenir des renseignements supplémentaires en écrivant au Dr R. X. O'Meyer, 267 rue St-Honoré, Paris 1er, France.

Organismes dentaires

Le Dr Durand dirige un organisme syndical au Québec

Le docteur Jean-Claude Durand de Montréal a été élu président de l'Association professionnelle des chirurgiens dentistes du Québec au début de l'année. Les autres responsables élus lors d'une réunion du Conseil des directeurs à Montréal sont les docteurs Georges Lepage, Québec, premier vice-président; Vincent Dontigny, Trois-Rivières, deuxième vice-président; Hubert Labelle, Montréal, trésorier; et André Laurin, Montréal, secrétaire.

L'Association professionnelle des chirurgiens dentistes du Québec (anciennement l'Association syndicale professionnelle) est un organisme syndical créé au Québec à la fin de l'année dernière (voir page 676 du Journal de novembre 1966).

Corps dentaire royal canadien

Promotions

Le quartier général des Forces canadiennes a annoncé récemment la promotion au rang de major des officiers suivants:

J. P. A. Legendre, D. R. O'Hara et C. M. Mason. Le major Legendre sera muté au Centre dentaire n° 35 à la division des Forces aériennes outre-mer. Les majors Mason et O'Hara servent actuellement en Europe avec la brigade.

Le major Guevremont se retire

Le major P. H. Guevremont a pris récemment sa retraite, après 19 années de service au Corps dentaire royal canadien. Le major Guevremont reçut un diplôme

en hygiène publique dentaire pendant son service et il a été très actif dans cette branche au Centre dentaire n° 15 de Montréal.

Economie

Dix-sept pour cent des ayants droit utilisent le premier plan de soins prépayés en Colombie britannique

Les administrateurs du premier plan de soins dentaires prépayés sont, paraît-il, heureux des résultats obtenus jusqu'ici et ils espèrent donner de l'expansion à ce programme. Lancé le 1er juillet 1966, le plan couvre 1,345 familles des membres du syndicat des ouvriers métallurgiques et des couvreurs sur la côte sud de la Colombie britannique. C'est une réalisation commune de la Société des services santé CU&C et de l'Association des services dentaires de la C.B.

Quatre cent quatorze des familles participantes seulement ont utilisé le plan pendant les six premiers mois. Plus de 4,000 personnes sont couvertes, mais seulement 700 soit 17 pour cent ont fait appel à ce service.

Les primes mensuelles sont de \$6.16 par famille et de \$2.60 pour les célibataires. Elles sont payées par l'intermédiaire du fond de bien-être pour les soins dentaires, aux termes du contrat syndicat-travail de l'industrie. Le fond est administré conjointement par le syndicat et la direction, et l'employeur paie 12 cents par heure et par employé. Ce fond général couvre aussi l'assurance maladie et accident, la retraite, les soins médicaux et l'assurance-vie.

Les dockers adoptent un programme de protection dentaire

En Colombie britannique, le syndicat international des dockers et des magasiniers a signé récemment avec la Société des services santé CU&C, un contrat pour un programme de protection dentaire qui couvrira à 100 pour cent les soins dentaires

pour les enfants dépendants jusqu'à l'âge de 15 ans. Tous les genres de soins dentaires sont compris, à l'exception de l'orthodontie. Ce programme dentaire est l'un des résultats des négociations de 1966 en vue d'un nouveau contrat syndical.

Le syndicat des ouvriers métallurgistes et des couvreurs a également un programme avec la CU&C, qui ne couvre toutefois que 50 pour cent des frais dentaires.

Les dentistes du Manitoba demandent une décision à propos du rapport sur les mécaniciens

L'Association dentaire du Manitoba a demandé au parlement manitobain de prendre une décision à propos du rapport d'une Commission parlementaire spéciale concernant les mécaniciens et techniciens dentaires. Ce rapport, déposé l'année dernière le 5 avril, déclare que les dentistes devraient conserver le contrôle total et la responsabilité entière de la santé buccale du public.

La question, débattue depuis plusieurs années, est de savoir si les mécaniciens et techniciens dentaires devraient être autorisés à travailler à leur compte et à faire des prothèses sans la surveillance d'un dentiste.

Dans une lettre distribuée à tous les membres du parlement, l'Association explique qu'une telle situation amènerait les mécaniciens à effectuer d'autres services dentaires et, comme ils ne possèdent pas les qualifications des dentistes, cela ne saurait que dégrader les normes de la santé dentaire au Manitoba.

La lettre développe également les idées suivantes:

Aujourd'hui, le technicien dentaire ne désire accomplir que des services mineurs, mais demain, il exigera plus de liberté et il sera extrêmement difficile de la lui refuser.

Les dentistes sont pleinement conscients du tort que le charlatanisme dentaire peut causer au public et ils ne peuvent pas courir le risque de voir leur silence interprété comme un consentement tacite.

La lettre dissipe l'illusion que le prix des prothèses baisserait si les mécaniciens

pouvaient travailler à leur compte. Au contraire, il est probable que les prix monteraient car les mécaniciens devraient alors faire face aux frais généraux d'un commerce indépendant.

L'Association déclare que le dentiste est la seule personne qui soit qualifiée par sa formation et ses connaissances pour diriger l'équipe de santé dentaire et assumer la responsabilité de ses efforts. Il est dans l'intérêt du public que les auxiliaires et les techniciens soulagent le dentiste des tâches courantes et lui prêtent main forte. Mais la sécurité du public exige que le dentiste conserve la responsabilité finale de tout travail dentaire.

Etude sur les auxiliaires dentaires en Saskatchewan

Le gouvernement de la Saskatchewan a créé un comité chargé d'étudier la possibilité d'employer des auxiliaires dentaires en Saskatchewan (voir page 47 du numéro de janvier du Journal).

Selon le *Regina Leader Post* du 9 mai, les attributions du comité sont importantes. Il est en effet chargé:

D'évaluer les besoins de services dentaires présents et futurs;

De recommander des programmes visant à mieux utiliser le personnel existant;

De définir le terme "auxiliaire dentaire";

De suggérer les rôles qui pourraient être attribués aux auxiliaires dentaires;

D'examiner la possibilité d'un programme de formation d'auxiliaires dentaires;

Enfin, de définir le contrôle que les dentistes devraient avoir sur les auxiliaires.

Monsieur W. T. Patton, homme d'affaires de Regina, a été nommé président. Le comité compte trois représentants du Collège des chirurgiens dentistes de la Saskatchewan, les docteurs R. O. Brett, W. F. Wihak et C. N. Bolen, tous de Regina, ainsi que des représentants du Ministère de la Santé, MM. W. J. Totten, J. D. Ramsay et A. L. Lizaire, et un représentant du Ministère de l'Education, Mme Audrey Sojonky.

Le Collège de l'Ontario impose un moratoire sur les spécialités nouvelles

Lors de sa réunion des 20 et 21 janvier, le Conseil de direction du Collège royal des chirurgiens dentistes de l'Ontario a décidé de refuser d'émettre des certificats de spécialiste en endodontie et en prosthodontie. Le Conseil a également imposé un moratoire sur la reconnaissance de toute spécialité nouvelle.

Honoraires médicaux ou salaire?

Un dirigeant de la Cooperative Union of Canada a déclaré que le système des honoraires pour payer les soins médicaux est aussi démodé que les robes à panier et les plumes d'oie.

A. F. Laidlaw a déclaré le 10 avril, lors d'une réunion à Banff, Alberta, que les consommateurs s'opposent invariablement au principe des sociétés médicales voulant que la profession médicale ait le droit de fixer unilatéralement les honoraires. Un salaire convenable pour les médecins lui semble être plus digne qu'un système d'honoraires établi à l'aveuglette.

Défendre un système qui permet aux médecins et aux chirurgiens de décider du niveau des honoraires, c'est rester attaché à des concepts du XIX^e siècle qui auraient dû disparaître avec les méthodes qu'employaient nos grand-mères pour traiter la pneumonie, a-t-il déclaré.

Fluoration

Le Nouveau-Brunswick toujours sans fluoration

Les électeurs de Fredericton se sont prononcés contre la fluoration dans la proportion de sept à quatre, par un plébiscite qui eut lieu le 12 juin à l'occasion des élections municipales dans tout le Nouveau-Brunswick.

D'après les rapports de l'agence Presse canadienne, 1,609 votes étaient en faveur de cette mesure et 2,806 contre. Ces élections étaient les premières depuis que le gouvernement de Louis Robichaud mit en

vigueur la réforme de la législation municipale, le 1^{er} janvier.

En conséquence, le Nouveau-Brunswick est encore sans aucune source d'eau fluorée. Par contre, la province voisine, la Nouvelle-Ecosse, a la fluoration depuis 1956. A la fin de 1966, 11 agglomérations avec une population totale de 213,000 habitants profitaient de cet avantage, y compris les villes de Halifax et Dartmouth. Au début de cette année, les villes de Liverpool et New Waterford ont commencé à fluorer leurs eaux et d'autres municipalités se joindront bientôt à elles. Le Gouvernement de la Nouvelle-Ecosse encourage la fluoration pour prévenir les caries dentaires et offre maintenant de payer la moitié de \$5,000 maximum de frais d'installation, sur une période de cinq ans, à toute municipalité prête à offrir cette mesure de santé publique.

Les Services philanthropiques réunis de Vancouver se déclarent en faveur de la fluoration

Une proposition de fluorer les sources d'eau de Vancouver et des environs a reçu l'appui unanime du Conseil de 37 membres des Services philanthropiques réunis de Vancouver et des environs, a déclaré récemment le *Vancouver Province*. Cette action passe outre aux objections faites récemment pour empêcher l'organisation de s'occuper de questions controversées qui ne sont pas du domaine de la charité.

En faisant cette déclaration, le Conseil a insisté sur le fait qu'aucun argent donné par le public ne serait consacré à la cause de la fluoration. Il a décidé toutefois que l'organisation coopérerait avec d'autres groupes pour atteindre ce but.

Le Minnesota approuve la loi rendant la fluoration obligatoire

Le 19 mai, le Minnesota a été le deuxième état des Etats-Unis à adopter une loi rendant la fluoration obligatoire, lorsque le gouverneur Harold LeVander a signé un décret demandant la fluoration de toutes les sources d'eau municipales, à partir du 1^{er} janvier 1970. Au Connecticut, une loi

sur la fluoration obligatoire a été passée en 1965.

D'autres états considèrent l'adoption d'une loi similaire, y compris l'état de New York et la Pennsylvanie.

Hygiène publique

De nouveaux programmes dentaires pour l'Ontario

Nous avons appris la transformation des programmes de protection dentaire de l'Ontario à la réunion inaugurale de la Société canadienne des dentistes de la santé publique, le 17 mai. Le sous-ministre de la Santé de l'Ontario, le Dr K. C. Charron, a qualifié la carence actuelle de personnel dentaire comme étant "la plus critique parmi les professions de la santé." Le comité de dentisterie, qui est l'un des 12 comités établis pour conseiller le Gouvernement de l'Ontario sur la création de programmes spécifiques, a accueilli avec enthousiasme la proposition qui lui a été faite. Il s'agit de former des unités sanitaires composées de 30 dentistes de santé publique et de 130-150 hygiénistes dentaires dans le cadre d'un programme provincial de prévention. Le Dr Charron a déclaré que l'amendement à la législation sur la santé publique présenté au parlement provincial, en avril dernier, assurera des subsides plus importants aux services de santé locaux. Son but est d'inciter les unités sanitaires locales à entreprendre de nouveaux projets. "Ce sera un programme dynamique," a déclaré le Dr Charron, qui ajouta que le service provincial de la Santé compte renforcer son personnel dentaire à son quartier général et dans toute la région.

La Société canadienne des dentistes de la Santé publique, avec 65 membres officiels, a été reconnue comme section de l'ADC à la récente réunion du Conseil des Gouverneurs, à Toronto. Le Dr R. A. Connor d'Ottawa en est le président. Le Conseil Exécutif se compose du: Dr J. J. Marineau, Chomedey Est, P. Québec, président-élu; du Dr J. M. Conchie, Cloverdale, Colombie britannique, secrétaire, et du Dr T. J. Gavriloff, Edmonton, trésorier.

Recherches

Le Dr MacDonald va étudier l'apport des universités canadiennes dans le domaine de la recherche

Le Dr J. B. Macdonald, qui vient de prendre sa retraite, fin juin, en tant que président de l'Université de la Colombie britannique, organisera et dirigera une étude sur l'apport des universités canadiennes dans le domaine de la recherche. Cette étude requise par le Conseil des sciences du Canada a été entreprise sur la demande du Secrétariat des sciences du Conseil privé et prendra environ un an. Le Dr Macdonald sera assisté d'une équipe d'experts des secteurs universitaire et gouvernemental.

Le but de cette étude est de formuler les objectifs qui demandent un apport supplémentaire dans le domaine de la recherche, de recommander l'établissement des principes qui le gouverneront et de déterminer les modalités d'organisation et de direction qui permettront le mieux d'atteindre ces objectifs et d'appliquer ces principes.

Distinctions honorifiques

Le Dr W. P. Munsie, président de l'ADC de Vancouver, a été nommé "Dentiste de l'année" à un congrès tenu récemment par l'Association dentaire de la Colombie britannique. Le Dr Munsie a été choisi par ses collègues comme le dentiste qui a rendu les services les plus éminents à la dentisterie et à la société, en Colombie britannique, au cours de l'année dernière. Une plaque d'or avec inscription montée sur bois et en forme de parchemin témoigne de cette distinction honorifique.

Le Dr Jean-Paul Lussier, doyen de la Faculté de chirurgie dentaire de l'Université de Montréal, a été élu membre de l'exécutif de la nouvelle Association des facultés dentaires du Canada. Le but principal de cette association est de coordonner les efforts des diverses facultés afin d'assurer le progrès de l'éducation et des recherches dentaires au Canada.

Canada and the Provinces

Science Fair Winner Honoured by CDA

Seventy-three finalists from 27 regional science fairs across Canada participated in the sixth Canada-wide Science Fair held at Laval University, Quebec, May 10-12. Winner of the Canadian Dental Association award was David Raymond, a grade 11 student from Sylvan Lake, Alberta.

The Canadian Dental Association is one of the sponsors of the Youth Science Foundation which promotes extra-cur-

ricular science activities and organizes the annual Canada-wide Science Fair. This year André Grenon of Quebec City represented the Association on the judging committee.

Ontario Crippled Children's Centre Appoints New Dental Director

R. L. Moran has been appointed dental director of the Ontario Crippled Children's Centre, Toronto. He replaces H. W. Sorenson who has accepted an appointment in the United States.

The dental department serves physically handicapped children with dental and oral disabilities who are unable to receive regular care from their family dentist. The centre also offers a cleft palate treatment program.

A native of Fort William, Ontario, Dr. Moran graduated from the University of Toronto's Faculty of Dentistry in 1961. In 1963 he earned a diploma in paedodontics. Dr. Moran is on the staff of the Faculty of Dentistry and also at Toronto's Hospital for Sick Children.

Hospital Dentistry Course at Scarborough Hospital October 12-13

Scarborough General Hospital, Scarborough, Ontario, will again offer a two day limited attendance course on hospital dentistry October 12-13. The \$65 registration fee includes luncheons and dinner. For further details please write to the course registrar, M. D. Charendoff, Scarborough General Hospital, 3050 Lawrence Avenue East, Scarborough, Ontario.



Louis Tomaschuk (l.), president of the Youth Science Foundation, congratulates the winner of the CDA award, David Raymond of Sylvan Lake, Alberta, a finalist from the Red Deer Regional Science Fair.

International Items

Periodontists to Meet in Washington Oct. 25-28

Washington, DC, will be the site of the 53rd annual meeting of the American Academy of Periodontology, October 25-28, 1967, at the Mayflower Hotel. One of the highlights of the meeting will be the essay to be delivered on October 25 by Jens Waerhaug, professor and chairman of the Department of Periodontology at Oslo University, Oslo, Norway. Members of all recognized dental organizations are invited to attend. Further information may be obtained from R. G. Kesel, 211 East Chicago Avenue, Chicago, Illinois 60611, USA.

Endodontic Course at Temple U Oct. 26-27

Canadian dentists have been invited to attend a television-lecture course in "Endodontic Treatment of Single and Multi-Rooted Teeth" at Temple University School of Dentistry, October 26-27. The course, to be presented by Leonard Pariris, professor of endodontics, has been scheduled to take place immediately before the annual meeting of the American Dental Association in Washington.

For further information and registration please write to the Director of Postgraduate Studies, Temple University School of Dentistry, 3223 North Broad Street, Philadelphia, Pennsylvania 19140, USA.

Hospital Dental Chiefs to Meet in Washington Oct. 29

The American Association of Hospital Dental Chiefs has scheduled an all-day session at the Hotel America in Washington, DC, October 29. Lecturers and their subjects include: J. R. Cameron, "Hospital dentistry — yesterday, today and tomorrow;" L. O. Bishop, "The hospital's future role in changing health concepts;" Joseph Williamson, "Total patient hospital care." Also scheduled is a forum on

"Dental training programs in approved hospitals" led by Warren Ball, assistant secretary of the American Dental Association's Council on Dental Education. Other prominent authorities on hospital dentistry including Jack Pfister, chairman, and J. E. Fauber, secretary of the Council on Hospital Service of the American Dental Association, will address the meeting.

Further information may be obtained from I. E. Gruber, secretary, American Association of Hospital Dental Chiefs, 100 South Grand Avenue, Baldwin, New York 11510, USA.

Postgraduate Courses Offered in New York

The First District Dental Society of New York will offer a variety of short postgraduate refresher courses during the fall months. Further information may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York, New York 10001, USA.

Another Implant Course in Paris Nov. 16-19

The International Research Centre for Implants in Dentistry, Paris, France, will offer a further three day limited attendance course in 'Implantology' November 16-19. The November course—like an earlier course July 6-8—will be held at the Lariboisière Hospital. The program will cover the entire range of implant techniques. The enrolment fee of \$200 is payable in two installments: \$100 to be mailed with the application for enrolment, and a further \$100 payable in October. Early enrolment is advisable and applications may be sent to R. Cherchève, 2 rue Ambroise Paré, Paris, France.

Edgewise Therapy Course in Paris 1968

A second European postgraduate course in edgewise therapy will be held near Paris, France, at the Centre Culturel de Royaumont, July 15 to August 3, 1968.

Participants must possess a good knowledge of English to follow the course. A sound knowledge of orthodontics is also required. The course will include theory as well as practice (table clinics) on typodonts. Further information may be obtained from Roger X. O'Meyer, 267 rue St Honoré, Paris 1^{er}, France.

Jamaica Meeting in January '68

Canadian dentists have been invited to attend the fourth national convention of the Jamaica Dental Association January 28 to February 2, 1968. This meeting will be held at the Sheraton-Kingston Hotel, Kingston, Jamaica. For further information please write to C. W. Meeks, Chairman, Convention Committee, Jamaica Dental Association, P.O. Box 19, Kingston 5, Jamaica, WI.

Argentine Meeting to Feature Clinical Courses

The Argentine Dental Association will offer several short clinical courses before and after the 15th international meeting of the Argentine Dental Association to be held at Mar del Plata, Argentina, December 6-9. The scheduled clinicians and their subjects include: R. E. McDonald, University of Indiana, paedodontics; S. P. Ramfjord, University of Michigan, occlusion; K. Steinhardt, University of Erlangen, West Germany, surgery; L. J. Baume, University of Geneva, Switzerland, endodontics; R. E. Moyers, University of Michigan, orthodontics; and D. A. Boyd, University of Indiana, operative dentistry.

Further information regarding these courses may be obtained from R. H. Canzani, 959 Junin, Buenos Aires, Argentina.

Dental Organizations

Dr. Spracklin President of Halifax County Society

T. E. Spracklin, Halifax, was elected president of the Halifax County Dental

Society when that organization held its annual meeting April 19. Named with Dr. Spracklin were: G. M. D. Conrad, Dartmouth, vice-president; D. M. J. Bonang, Halifax, treasurer; and R. Conter, Dartmouth, secretary.

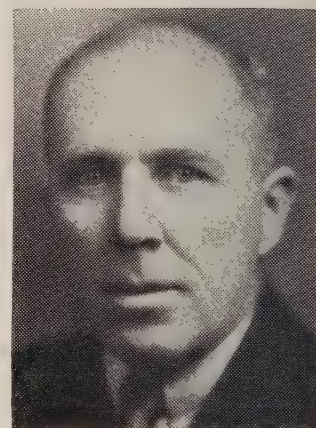
Mount Royal Society Installs Dr. Sedlezky as President

Benjamin Sedlezky was installed as president of Montreal's Mount Royal Dental Society on May 25. He succeeds H. L. Levitt. Other officers for the coming year are: B. L. Mendel, vice-president; M. Shevell, corresponding secretary; E. Slapcoff, recording secretary; A. S. Wainberg, treasurer; and I. Lubin, historian-archivist.



B. Sedlezky

L. O. Leger



Saint John Dentists Elect Dr. Leger

L. O. Leger was recently elected president of the Saint John Dental Society for 1967-68. Other officers named were: J. F. Edgecombe, vice-president; Monica Mooney, secretary; and M. Levine, treasurer. L. G. Zed was appointed representative to the New Brunswick Dental Society Council.

Dr. Mazak Heads Essex County Society in Ontario

E. H. Mazak of Windsor, Ontario, was recently elected president of the Essex County Dental Society for 1967-68. Other officers named with Dr. Mazak were:

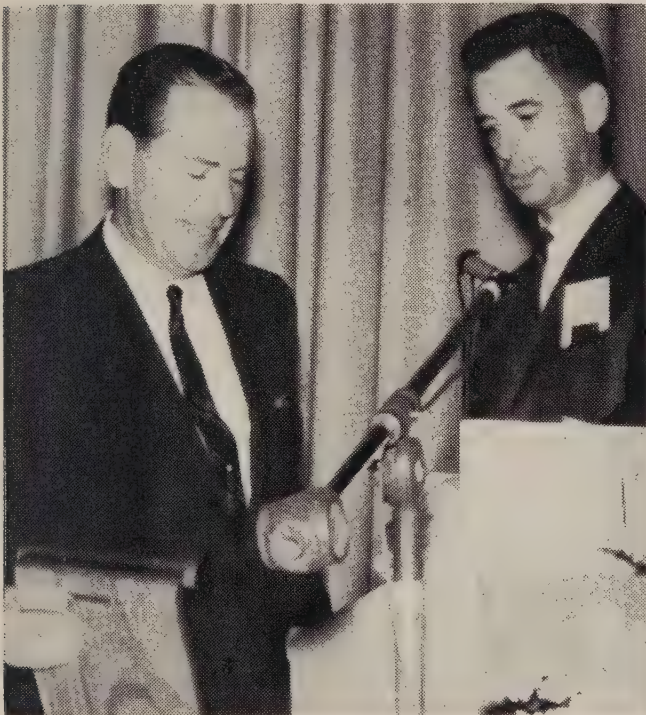
P. J. Courey, vice-president; J. M. Emon, treasurer; and M. A. Hakem, secretary.

Dr. Kovitz Heads Calgary Society

D. M. Kovitz was recently elected president of the Calgary and District Dental Society. He succeeds E. W. P. Luxford. Others named with Dr. Kovitz were: G. K. Minty, vice-president; G. L. Locke, secretary; and G. N. Findlay, treasurer.

Central Alberta Society Elects Dr. Boyce

M. S. Boyce, Lacombe, was recently elected president of the Central Alberta Dental Society for the 1967-68 term. He succeeds E. V. Dolinsky of Red Deer. Other officers named with Dr. Boyce were L. N. Kjørven, Red Deer, vice-president, and C. A. White, Red Deer, secretary-treasurer. Directors of the society are W. A. Dade, Stettler; F. J. Leboldus, Rimbey; and A. G. Cumberland and J. D. Murphy, Red Deer.



Honours do not come singly to CDA President W. P. Munsie. Each year the British Columbia Dental Association selects one of its members for the "Dentist of the Year Award." The recipient is the person adjudged to have made the greatest contribution to community life. Dr. Munsie was the unanimous choice this year. The citation was made at the recent provincial convention by BCDA Past President D. E. Waller (r.) who also presented the plaque.

Dr. Cranstoun Heads Victoria Dentists

G. B. Cranstoun was installed as president of the Victoria and District Dental Society when that organization held its annual meeting May 13. Other officers elected were: R. M. Torrie, vice-president; D. B. Emery, secretary; and D. E. Espley, treasurer. Directors of the society are H. M. Hare, W. A. Dennis, K. E. Leslie and B. Kjekstad.

Canadian Dental Schools

New Award Established at Toronto U

The University of Toronto's Faculty of Dentistry recently announced the establishment of a new award in oral surgery. The prize, known as the Joseph Harker Johnson Award, is in honour of the former head of the faculty's oral surgery department. The award, valued at about \$300, will go to the final year student who each year achieves the greatest proficiency in oral surgery and anaesthesia. Funds for the award came from donations made by Dr. Johnson's many colleagues and former students for the purchase of his portrait which now hangs in the faculty's oral surgery department.

Dr. Stoneman to UWO

W. J. Dunn, dean of the Faculty of Dentistry at the University of Western Ontario, recently announced the appointment of D. W. Stoneman as associate professor of dental radiology. Dr. Stoneman assumed his new duties on July 1.

Born in Ingersoll, Ontario, Dr. Stoneman graduated from the University of Toronto in 1945 and then served for a year with the Canadian Dental Corps. Following his discharge, he returned to Toronto to establish a practice in general dentistry.

Dr. Stoneman served as an associate in the Department of Radiology at Toronto's Faculty of Dentistry from 1957. He is a past president of the Toronto Radiodontic Study Club.



D. W. Stoneman



D. J. Gau

Oral Pathology Biopsy Service at Western U

The Faculty of Dentistry at the University of Western Ontario has announced the inception of a new oral pathology biopsy service under the direction of D. G. Gardner.

The service is available to both dentists and physicians. Complete kits consisting of bottles of fixative, biopsy forms and mailing tubes are being sent to all dentists in south-western and northern Ontario. Kits are available to other practitioners on request.

Further information may be obtained from D. G. Gardner, Oral Pathology Biopsy Service, Department of Pathology, University of Western Ontario, London, Ontario.

Dr. Gau Joins Alberta Faculty

D. J. Gau, who graduated June 1 with distinction from the Faculty of Dentistry, University of Alberta, has been named an assistant professor at the Alberta dental school. A native of Camrose, Alberta, Dr. Gau earned a bachelor of science degree in engineering physics in 1963 before proceeding with his dental studies.

Royal Canadian Dental Corps

Major Gazo Dies

Maj. E. W. Gazo of Ottawa died on June 26, 1967, at the age of 29. Commissioned in the Royal Canadian Dental Corps in

1956, Maj. Gazo graduated from the University of Toronto in 1960. He served in Trenton and Picton, Ontario, before going overseas to No. 4 Field Dental Company in Germany in 1964. On returning to Canada, he was posted to the National Defence Medical Centre in Ottawa. Maj. Gazo is survived by his wife and three children.

Economics

Indifference Called a Major Barrier to Nation's Dental Health

Plain indifference, rather than a shortage of dentists, is the real obstacle to improving the dental health of Canadians, according to CDA Secretary W. G. McIntosh. In a speech delivered June 22 to the Canadian Medical Association in Montreal, Dr. McIntosh said that if the current rate of demand for dental care remained constant over the next decade the dental profession could more than meet it. But demand "will increase — at what rate we do not know — because the population will increase, per capita income will increase, the level of education of the population will increase, and public appreciation of good dental health will increase," the dental executive said.

"We need to increase the demand for dental care while decreasing the need for it," Dr. McIntosh explained. That is why the dental profession is developing a dental health plan for children which will make the benefits of an organized program of dental health education, prevention and dental care available to children regardless of geography or parental incomes, he said. That is also why the profession has called for mandatory fluoridation with federal cost sharing of equipment and installation; a study of the reasons for low dental demand in order to determine priorities in setting up public programs; more diagnostic and educational dental public health programs for preschool and school children; further investigation of profession-sponsored prepayment dental plans; dental care for homebound aged and chronically ill per-

sons; general hospital outpatient dental clinics for marginal income groups; and dental departments in all institutions for the aged and chronically ill.

Dr. McIntosh observed on an optimistic note that dentists have increased faster than the population in the past four years; recent technical innovations have helped to increase dentists' productivity by 30 per cent; more people than ever are drinking fluoridated water, receiving topically applied fluoride solutions, and using fluoride containing dentifrices; and more dentists and dental auxiliaries are expected to stream from Canada's dental schools which will increase their combined capacity by 50 per cent over the next 10 years.

Dr. McIntosh added that the CDA will continue to increase its recruitment program. Women, now a relatively untapped source of potential dentists, could become a major target for dental recruitment, he suggested.

BC Longshoremen Sign up for Dental Plan

The International Longshoremen's and Warehousemen's Union in British Columbia recently signed with the CU&C Health Services Society for a dental plan which will pay 100 per cent of the cost of dental care for dependent children up to 15 years of age. Every type of dental service except orthodontics is included. The dental plan is a result of the union's 1966 contract negotiation.

The Sheet Metal Workers and Flat Deck Roofers' Union also have a plan with CU&C, but it pays for only 50 per cent of the patient's dental bill.

Prince Edward Island Offers Dentist Incentives

Prince Edward Island is offering new incentives in a bid to attract more dentists to the island province. Recent legislation provides student loans and dental practice establishment loans to induce dentists to settle in areas where they are needed.

Students may be granted up to \$1,500 for each year of the dental course irres-

pective of any loan obtained under the Canada Student Loan Plan. Dentists licensed to practise in Prince Edward Island may be granted up to \$2,000 to establish a practice and up to \$10,000 for necessary equipment. Recipients of either loan must agree to practise in PEI for not less than three years.

Urge Dental Service Corporation in Every American State by 1970

The National Association of Dental Service Plans — a country-wide federation of profession-sponsored dental service corporations in the United States — wants to see a 'corporate shell' for a dental service corporation in every state by 1970. The move would give new impetus to prepayment plans with multistate coverage. These plans, according to NADSP President K. J. Ryan, are being frustrated by the lack of a service corporation mechanism in many states.

Dr. Ryan also advocated the development of regional administrative agencies to serve areas with small populations. "This concept appears to offer a sensible solution to the smaller states," he explained.

Fluoridation

Vancouver's United Community Services Support Fluoridation

A proposal to fluoridate the water supplies for the Greater Vancouver area has been given the unanimous support of the 37-member board of the United Community Services of Greater Vancouver, as reported recently by the *Vancouver Province*. This action overrides some objections made against the organization becoming involved in a "controversial, non-charitable issue."

In making the announcement, the board stressed that no publicly donated money would be devoted to the support of fluoridation but agreed that the UCS should work with other groups to achieve this objective.

New Brunswick Still Without Fluoridation

Fredericton voters rejected fluoridation by a margin of seven to four in a plebiscite held June 12 in connection with municipal elections throughout New Brunswick. According to Canadian Press reports 1,609 ballots were cast in favour of the measure and 2,806 against. The elections were the first held since Premier Louis Robichaud's government implemented its municipal reform legislation January 1. As a result, New Brunswick is still without a single fluoridated water supply.

In contrast, neighboring Nova Scotia has had fluoridation since 1956. By the end of 1966, 11 Nova Scotia communities with 213,000 people made use of fluoridation. These include the cities of Halifax and Dartmouth. Early this year the towns of Liverpool and New Waterford commenced to fluoridate and these will soon be joined by other municipalities. The Nova Scotia government promotes fluoridation for the prevention of tooth decay and now offers to pay half of \$5,000 maximum installation costs, spread over five years, for any municipality which desires to use this public health measure.

Illinois Passes Fluoridation Law

The Illinois House of Representatives on June 21 approved a bill on mandatory fluoridation. The state senate had previously passed the bill in April. Illinois thus becomes the third state in the United States to adopt a mandatory fluoridation law.

Public Health

'New Look' Dental Programs for Ontario

The 'new look' in Ontario's dental public health programs was unveiled at the inaugural meeting of the Canadian Society of Public Health Dentists May 17. K. C. Charron, Ontario's deputy minister of health, termed current shortages of

dental personnel as "among the most critical in the health professions." He endorsed the proposal of a dental task force — one of 12 committees set up to advise the Ontario government on specific health programs — that 30 district dental public health officers and 130-150 dental hygienists be employed by local health departments for a province-wide preventive care program. Dr. Charron said that amended health legislation, introduced in the provincial legislature last April, will offer increased grant assistance for local health services. The purpose is to stimulate local boards of health to undertake new projects. "This will be a dynamic program," said Dr. Charron, adding that the provincial health department will strengthen its own dental staff, both at headquarters and regionally.

The Canadian Society of Public Health Dentists with 65 charter members was recognized as a CDA section at the recent CDA Board of Governors meeting in Toronto. R. A. Connor, Ottawa, is the president. Other officers are: J. J. Marineau, Chomedey Est, P. Quebec, president-elect; J. M. Conchie, Cloverdale, British Columbia, secretary; and T. J. Gavriloff, Edmonton, treasurer.

Research

Therapeutic Gum Being Tested

In British Columbia, Regional Dental Consultant A. S. Richardson of Cranbrook will begin testing the anticariogenic effectiveness of therapeutic chewing gum this year. Eight hundred and fifty grade 3-5 children will participate in the study. The children have received clinical examination and will be divided into three equal groups by age, grade, sex and dental status. In the fall the three groups will receive for home use toothbrushes and unlabelled tooth paste. Two of the groups will also receive three sticks a day of the two test gums. The study will continue for two years with further examinations scheduled during May and June 1968 and 1969.

Research Awards to Alberta Faculty

Grants amounting to more than \$50,000 have been awarded to eight University of Alberta Faculty of Dentistry members, enabling them to employ dental students during the summer. Recipients of the awards are M. N. Attalla, R. V. Blackmore, G. H. Gibb, O. N. Lucas, P. D. MacRae, R. C. McClelland, K. A. McMurchy and J. Tuba.

The grants were received from the National Research Council, Alberta's Department of Public Health, and the University of Alberta.

Three New Dental Research Centres Started in United States

Grants totalling \$2,100,000 for the first year of a five year development program for new dental research centres have been awarded by the US Public Health Service to the Universities of Alabama, Michigan and North Carolina.

Most programs of grant support have traditionally aided individual research projects, whereas the new program encourages institutions to bring together all the necessary elements for a united and sustained attack on complex and massive dental problems that have long resisted a piecemeal approach.

At the University of North Carolina, the program will focus attention initially on several general areas of science related to oral health. These include neural mechanisms, mineral metabolism and haemostatic mechanisms. Subsequent research will deal with vocalization mechanisms, biological materials, prosthetics and tissue-microbe interaction.

Among problems to be studied at the University of Alabama are mineralization and demineralization of tooth structure and supporting tissues, the formation and metabolism of dental plaque, and the biochemistry of connective tissues in health and disease. Future research will include studies in genetics and biological materials. The university envisions establishment of applied clinical research programs during the second year of the new program.

At the University of Michigan, the pro-

gram will be based on the departments of anatomy, biochemistry, genetics, pathology, pharmacology, physiology, and microbiology, to provide co-ordinated interdisciplinary research in the sciences related to oral health.

The US Public Health Service anticipates that two or three additional dental research centres will be established during the next year or two.

Awards and Honors

At its thirteenth annual meeting in Toronto May 14-16, the Canadian Society of Oral Surgeons bestowed an honorary membership on **J. H. Johnson**, Toronto, for "his many years of devotion to his students at the University of Toronto, to the profession of dentistry and to the specialty of oral surgery." Dr. Johnson, in turn, presented a ceremonial gavel and



J. H. Johnson (l.), Toronto, recently honoured by the Canadian Society of Oral Surgeons, presented a ceremonial gavel and case to CSOS President D. H. MacDonald on May 15 to "record the founding of the society and to mark 100 years of organized dentistry in Ontario."

case to CSOS President D. H. MacDonald. The case bears the following legend: "Presented to the Canadian Society of Oral Surgeons May 15, 1967 to record the founding of the society and to mark 100 years of organized dentistry in Ontario." The head of the gavel and the sounding board are made from the shutters of 'Bellevue,' Sir John A. MacDonald's home in Kingston. The handle of the gavel is made from a hardwood sapling cut from the site of the old MacDonald home on Hay Bay. The head of the gavel bears a gold plate on which is engraved the following inscription: "Canadian Society of Oral Surgeons Founded 1953 Montreal."

Deaths

Collins, Charles Cyril. 68. Toronto. Royal College of Dental Surgeons of Ontario, 1922. 5-7-67. Survived by Velma May (wife) and Bruce and Harold (brothers).

Cooper, William James. 76. Toronto. Royal College of Dental Surgeons of Ontario, 1915. 23-6-67. Associate member Canadian Dental Association. Survived by Beatrice (wife), Donald and John (sons) and Sandra (granddaughter).

Gazo, Edward William (Major). 29. Ot-

tawa. University of Toronto, 1960. 26-6-67. Survived by wife and three children.

Hipwell, Willard Leon. 68. Toronto. Royal College of Dental Surgeons of Ontario, 1924. 29-6-67. Survived by Thomas and Richard (sons) and Billy (grandson).

Moyer, Charles Edward. 71. Port Stanley, Ontario. Royal College of Dental Surgeons of Ontario, 1919. 30-6-67. Associate member Canadian Dental Association. Survived by Mrs. Elva Walcott and Mrs. Wilfred Ingham (sisters).

Peters, Joseph Harry Andrew. 62. Toronto. University of Toronto, 1935. 2-7-67. Survived by Ruth (wife), Gregory and Robert (sons), three sisters and one brother.

Simard, Charles E. 43. Bagotville, P. Québec. 11-5-67. Université de Montréal, 1953.

Snider, Norman Wray. 68. Kenora, Ontario. Royal College of Dental Surgeons of Ontario, 1920. 8-5-67. Associate member Canadian Dental Association. Survived by Nora (wife).

Williams, John Maurice. 72. Hamiota, Manitoba. Royal College of Dental Surgeons of Ontario, 1923. 11-6-67. Associate member Canadian Dental Association. Survived by Mrs. J. M. Williams (wife), Mrs. J. Pendygrasse (daughter) and David (son).

book reviews • analyse

Physiology of Occlusion and Rehabilitation

Ulf Posselt. Oxford, Blackwell Scientific Publications, 1966. (Available from The Ryerson Press, Toronto) 262 p. Illus. \$10.50

This third printing of Posselt's book is very similar in context to the first. The first printing became available in December 1962. Since that time, it has become very valuable to dental students and practitioners.

The book is in two main parts. Part one discusses the physiology of the masticatory system under the headings of components, positions and movements, functions, and dysfunctions. Part two deals with diagnosis and treatment under the headings of diagnostic aids, functional analysis, and rehabilitation. Rehabilitation in this case includes preparatory treatment, occlusal adjustment by grinding, bite guards and bite plates, orthodontic treatment, splinting, and prosthetic reconstruction.

Portions of the book which particularly please this reviewer are the descriptions about influences which control contact movements, border movements, and free movements of the mandible. There is also an excellent description of the changes of function or structure which arise from occlusal disharmony. The author supports the opinion that correction of occlusal dis-

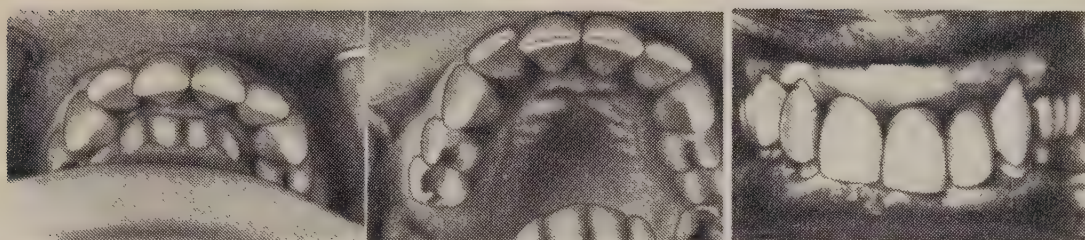


FIG. 147 a. Direct biting on the palatal tissue from overerupted lower incisors in a case of Class II, Div. I malocclusion.

FIG. 147 b. Impressions from the lower incisors in the palatal mucosae.

FIG. 148. Extremely deep vertical overlap with direct biting on the facial gingival tissue of the lower jaw.

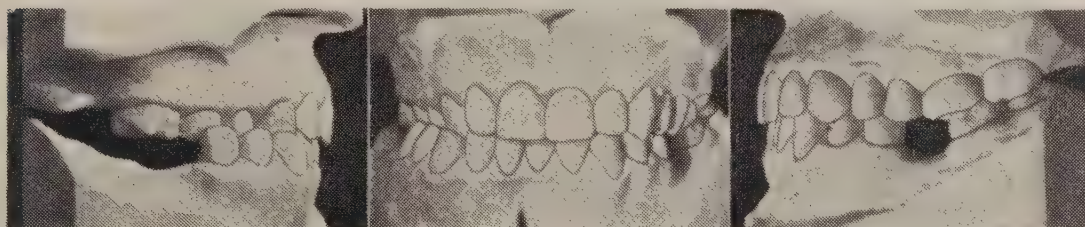


FIG. 149 a-c. A 36-year-old woman. A morphological severe crossbite but no cuspal interference during closure or gliding movements, opening movements and interocclusal distance normal. This is a typical example of crossbite which is not functionally disturbing and which was treated not orthodontically but with grinding and a bite-guard.

190 PHYSIOLOGY OF OCCLUSION AND REHABILITATION

Illustration from Posselt's "Physiology of Occlusion and Rehabilitation".

harmony is a highly important phase of the treatment of temporomandibular joint disorders. The section on rehabilitation discusses and illustrates a wide variety of practical procedures for which most practitioners will find applications in their practices.

This book is recommended both as a basic course in the physiology of occlusion and for the assistance it furnishes the practitioner in the correction of occlusal disharmonies.

C. H. M. Williams

Improving Dental Practice through Preventive Measures

J. L. Bernier and J. C. Muhler, ed. St. Louis, C. V. Mosby Company, 1966. 378 p. Illus. \$17.50

It has not been easy for the dental profession, with its roots and traditions in the field of surgery, to alter its course of action in the fight against dental disease. Outstanding among those who have urged the profession to change its traditional approach is J. C. Muhler of the University of Indiana School of Dentistry. In his latest book he has combined efforts with J. L. Bernier, Chief of the Dental Corps of the United States Army, and 14 other authors in an attempt to bridge the gap between the scientist and the practitioner. In most respects they have succeeded quite well in outlining practical preven-

tive procedures based on sound research which the practitioner can easily incorporate into routine office practice.

No attempt is made to define preventive dentistry; instead preventive dentistry is presented as a philosophy of dental practice. Bernier suggests that we should ask: "what will be the total oral health standards 10 years from now, after I have finished the multiple procedures that must be performed now?" Such an approach must serve as the basis of modern dental practice.

In a chapter entitled "Incorporation of Preventive Dentistry into Office Practice," Mercer gives an excellent description of the various types of slide projectors and synchronized tape recorders which can be used in the waiting room for patient education. Unfortunately, the commercial sources of the equipment are not included. Such an omission, in my experience, frequently hinders the actualization of preventive dentistry.

The chapters on preventive nutrition and fluoride therapy are excellent, particularly the latter since it contains the most extensive review on topical fluoride therapy yet published. One can highly recommend this book on the basis of these two chapters alone.

Although the preventive aspects of nearly all branches of dentistry are covered, restorative dentistry has been overlooked for some strange reason. Historically, restorative dentistry has probably contributed more in the field of prevention than any other branch of dentistry. Perhaps this omission was intentional in order to emphasize that restorative dentistry has failed to demonstrate a signifi-

cant impact on dental health. Regardless, it was most disappointing to note that such recent developments in the field of operative dentistry as pin reinforced amalgam restorations, routine shoeing of cusps in endodontically treated teeth and immediate replacement of lost teeth by fixed bridges, especially in the young patient, were not included in what is otherwise an excellent contribution to the dental literature.

The chapter on preventive orthodontics was disappointing in view of the numerous indications that the incorporation of the various primary preventive procedures outlined in the book are already changing the scope of dental practice.

The concluding chapter, "Physical Fitness and Dynamic Health," should be read by every practising dentist. The author, T. K. Cureton, professor of physical education at the University of Illinois, outlines a practical program of physical fitness which can be easily followed by every dentist who wishes to ensure a healthy body to withstand the rigors of dental practice.

The price of this book (\$17.50), though perhaps not excessive for the practising Canadian dentist, may be beyond the reach of most students.

C. R. Castaldi

Toward Improved Learning

Public Health Service Audiovisual Facility. Atlanta, Georgia, US Department of Health, Education and Welfare. Public Health Service, Bureau of Disease Prevention and Environmental Control, National Communicable Disease Center, 1967. 417 p. Illus.

This report consists of a collection of 59 significant reprints compiled under the direction of James Lieberman, DVM.

In his foreword Dr. Lieberman states "The collection of papers in this volume is intended to encourage academicians in the health sciences to explore some of the new dimensions in the effective communication of knowledge in different learning settings." This is demonstrated by some enlightening overviews of other outstanding professionals involved in the broad spectrum of subjects which make up the curriculum of the health sciences. The whole report constitutes a comprehensive survey of the media of education, especially in the area of health services. It stresses the necessity of carefully planning the use of communications media for instruction, and of integrating all phases of teaching as well as of self-learning.

With such a wide variety of new instructional equipment increasingly available in every branch of the health sciences as we know them, as well as in the newer developing branches, the media must be determined by the objectives of the immediate

subject of instruction. The attitudes and psychology of the instruction must also be oriented to the rising demands. There will be no place in the educational procedures for any complacent 'just-go-along' attitude. Every director and every instructor must strive to keep abreast of the technological explosion and be on his toes to meet the tremendous challenge of directing his students—not only as a class but also as individual persons—toward immediate and ultimate goals.

This comprehensive survey of available medical and other communication sources covers a multitude of facets. The multi-media approach to the teaching of each branch of the health sciences, e.g. audio-tutoring, bilingual, audiovisual, etc., as applied to curriculum, must be carefully planned. The report evaluates some of the newer media already in use such as television, video-taping of interviews and seminars, and psychotherapeutic techniques as teaching tools, and deals with new types of media which are becoming increasingly available, their uses, advantages and problems. These include programmed instruction and learning, audiovisual and other recently developed devices. It treats the unique capabilities of such proposals as that for a system of closed circuit television, which may be received by subscribing hospitals for their medical and nursing classes; the newer media for postgraduate education; the 8 mm. film as a newer and cheaper medical tool; computer-aid instruction, how it works and its effectiveness; and film documentaries of all kinds. Some of these facilities are already in extensive use in various parts of the world. Among the 59 papers there is one dealing with the lifetime responsibility of a medical school for the education of its physician graduates—an idea established, if not pioneered, at the University of Kansas Medical Centre.

The multi-media approach to instruction is stressed, with the latest developments often followed by further illuminating notes or discussions, resulting in a valuable comprehensive survey of health sciences communication sources available today to hospitals, clinics, physicians, dentists and scientists in their endeavour to keep abreast of the times.

With its many and varied papers on applications of methodology of both proven and experimental media of learning and its evaluation of their usefulness, *Toward Improved Learning* should be of great value to instructors and directors in all the health sciences, whether medicine, dentistry, nursing, public health, veterinary sciences, hospital administration or basic sciences. It should also prove an excellent source book for all concerned with communications research and the development of the most effective means of imparting knowledge. The book is now on the shelves of the CDA library.

A. C. Lewis

A task force for child dental care

CDA President W. P. Munsie took the second step toward a national children's dental health program on August 30 when he announced the establishment of a task force to expedite the development of such a program. Fifteen months have elapsed since the Board of Governors, meeting in Halifax, first instructed the Dental Services Committee to formulate a children's program. Since last October a six-member subcommittee of the Dental Services Committee has been hard at work on the project. The group circulated a preliminary draft earlier this year and was expected to have a final version available by the first of this month. Compelled as they were to work during evenings, weekends and holidays, these dentists had an unenviable task. Despite this handicap, they came up with a model plan and for this alone they deserve the plaudits of the entire profession. But this does not mean that the final word has necessarily been uttered. On the contrary, the model plan must now be presented to the profession for its approbation or for modification and adaptation to suit the requirements of local circumstances. The important point is that any proposals and plans for improving the health of children must include a full consideration by the dentist of their effect on his practice. For this is where the work of planners and administrators must ultimately have its justification. And that is where the task force enters the picture.

Its composition—it is made up of the CDA Executive Council—is a reflection of the significance and urgency which the members attach to their assignment. They have therefore instructed the CDA secretariat to give top priority to the administrative requests of the task force and, if necessary, to suspend other activities pending the completion of this work.

It remains to be seen how the task force will proceed from here. Its terms of reference are necessarily broad. A likely step may be to conduct regional hearings where spokesmen for the profession will be invited to submit their views on the model plan. The task force may simultaneously assemble all available information about current children's programs elsewhere in the world. It may even commission special studies in order to plug any deficiencies in our current knowledge with respect to such plans.

It is a prudent profession that arms itself with a plan that can be held in readiness for any occasion. It will be the duty of the task force to fashion such a plan so that it meets the legitimate aspirations of dentists and their patients.

As Others See It

Senior governments should decide

Handing the ball of fluoridation to municipalities is like giving a live ostrich to a hungry kitten: he doesn't know what to do with it.

We don't pretend to be good losers in connection with the fluoridation decision. Nor do we quarrel with the voters' decision. We merely quarrel, as we have in the past, with federal and provincial ducking of the issue.

The Morden Report on fluoridation, which wholeheartedly endorsed fluoridation of municipal water supplies, should have been acted on more positively at the senior levels of government so that there could be no costly problems cast in municipal laps. That's what we have health portfolios for in both Ottawa and Queen's Park. If they can't decide, one way or another, about an issue which should never be controversial in the first place, how can the more limited knowledge in a small community be expected to unravel what is actually a highly technical subject?

If fluoridation — like mines and resources, national defence, highways, and airways, etc. — were handled by senior levels of government, there would never be a question raised at the local level. Health is no less a provincial or national problem than many of the other areas of responsibility which are shouldered in senior legislatures. A parallel situation would be asking Barrie to build its own navy or air force.

It's time Ottawa took on fluoridation and adopted a standard for all municipalities, one way or another.

Barrie Banner, March 23, 1967. Reprinted by permission.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

■

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Specialists and Specialization

To the Editor:

It gave me much satisfaction to read in the June issue of your Journal that Saskatchewan had ruled that it was no longer necessary for a periodontist to restrict his practice to the specialty in which he is registered.

I commenced practice in 1903, retiring at the end of January 1965. In my early days of practice I realized that if a patient was to retain his teeth for many years regular periodontic treatment was a necessity. I was able to handle the ordinary periodontic problems but felt that I had not the skill to treat the more difficult problems. I advised these patients with the difficult problems to go to a specialist in Minneapolis—over 400 miles away—if they could afford it. However, I began to make a special study of periodontic problems and took a number of special courses. When I felt that I could handle the most difficult case, I stopped sending patients to Minneapolis.

I did not apply for specialist standing at that time, or any time since, as I believed it

to be in the best interests of my patients and those interests should come first.

For many years three-quarters of my time was spent on periodontic treatment. I did not undertake any crown or bridge work nor did I make any dentures or gold inlays, etc. However, if I made a mandibular injection, for instance, for the purpose of doing a gingivectomy and the first molar was loose and had to be extracted and there was a very sensitive cavity on the buccal of the bicuspid requiring an amalgam filling, I had no hesitation in completing all this work under the one anaesthetic. In my opinion it would not have been in my patient's interest to refer him to some other dentist for part of the service. This relates to my own patient and not a referred patient.

That is the reason I have never sought specialist status and under no consideration would I accept it today if I were still in practice if that meant my practice had to be limited to my specialty, which is the law in this province and I believe in many, if not all others, until recently. I am strongly of the opinion that if a man agrees to spend, say 75 per cent of his time in a special field of endeavour and he has the necessary qualifications, that should be sufficient to permit him to call himself a specialist. That does not mean that the referred patient might be reluctant to return to the referring dentist. During the years I have had many referred patients from dentists who knew that their patient would not be lost. When such a patient was received the name of the dentist who referred the patient was placed at the top of the patient's chart and I, and my partners, always refused to do any other type of work for such patient even though he returned in a year or more for general operative dentistry.

I trust that before long other provinces will see the light and follow in the footsteps of Saskatchewan.

M. H. Garvin, DDS, LL D (Hon.), FRCD(C),
333 Wellington Crescent,
Winnipeg 9, Man.

Dental Hygienist Protests Lack of Employment

To the Editor:

I am a dental hygienist who, after keeping silent for three years, feels that the time has come to speak out about the deplorable events taking place in one of the largest dental centres in Canada. Previously, I have enjoyed employment with several fine practitioners in this area but in March 1967 was requested to resign as "there was not sufficient work to occupy me."

For 2½ months I sought a position unsuccessfully. It is now August and I am still not practising my profession although, of necessity, I am working as an assistant. I had countless interviews and used all available means to make it known that I was ready and able to work. This includes universities and clinics. The excuses I heard were incomprehensible. For example, I was informed that patients would not accept treatment from anyone but the doctor, that hygienists were unprofitable, that my requested salary was beyond the means of the doctor. There is not time nor paper enough to list other reasons but I am sure the reader can well imagine my reaction on hearing such insults to a profession which I enjoy and take pride in.

There are over 700 practising dentists and eight hygienists in this city. Dental hygiene has proved successful all over North America so that the attitude of the profession in this area is beyond comprehension. When a hygienist is employed (there are an enlightened few) the salary offered falls short of salaries in smaller centres. Why? Do fees really vary so greatly from one area to another?

The dental profession claims that the public must be educated about the utilization of hygienists. It is my opinion that it is the profession which must be educated about the hygienist and her value to a dental practice before the public will find her treatment acceptable.

Name withheld at author's request.

Join the more than 2,400 dentists whose families are protected against hospital and physicians' services' costs through the Canadian Dental Association sponsored Hospital-Medical-Surgical-Extended Health Care Plan. Further details are available from the administrator of CDA-sponsored pension and insurance plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ontario.

Improved exposure and processing techniques in dental radiology

J. A. Reid, DDS, London, Ontario

Methods are described whereby the dentist can check the collimation and filtration characteristics of his own x-ray machine and evaluate his exposure and development techniques. Gonadal radiation can be reduced by (1) diminishing the beam size to 2¾ inches diameter, (2) using filtration equivalent to 2 mm. aluminum, (3) employing the fastest film, and (4) using a long, open end tube instead of the short cone. Precautions for avoiding exposure to scattered radiation are outlined and suggestions are offered for proper viewing of the radiograph.

Cet article décrit les procédés permettant au dentiste de vérifier les caractéristiques de collimation et de filtration de son appareil de radiographie et d'évaluer ses techniques d'exposition et de développement. L'irradiation des gonades peut être réduite (1) en diminuant le diamètre du faisceau à 2¾ pouces, (2) en employant une filtration équivalente à 2 mm. d'aluminium, (3) en se servant des films les plus rapides, et (4) en utilisant un tube long et ouvert au lieu d'un cône court. L'auteur mentionne des précautions à prendre pour éviter l'exposition aux radiations éparses ainsi que des suggestions relatives à l'examen des clichés.

During the past 17 years dentists have been repeatedly urged to reduce the hazards of radiation exposure for their patients and themselves by using (1) a lead diaphragm to reduce the size of the x-ray beam, (2) proper filtration equivalent to 2 mm. of aluminum, and (3) the fastest film available.¹⁻⁴ Despite these appeals, three recent American surveys⁵⁻⁷

show that many dentists have failed to heed the warning. A recent survey in Michigan⁸ is suggestive of what might be found in this country. In 1963, following an educational program, the Michigan Department of Public Health tested some 3,200 x-ray machines. Thirty-five per cent were satisfactory, 8.4 per cent required collimation alone, 24 per cent re-

quired filtration alone, 23 per cent required both collimation and filtration, and the status of 9.6 per cent of the machines tested could not be determined. There is no reason to believe that the situation is any different in Canada. Indeed, a recent unpublished survey in the Ottawa area⁹ confirms the suspicion that the situation is similar to that reflected by the Michigan findings. Unfortunately, there is a scarcity of published information in dental journals to show the general practitioner how to appraise his own machine and his own methods of processing x-ray films. I hope this article will induce readers to check their machines and methods and help them to diminish radiation hazards for their patients and themselves.

MACHINES

Tables 1 and 2³ outline the filtration and collimation characteristics of various x-ray machines. It is preferable, however, for the dentist to test his own machine. A simple test for beam size can be done using a 5x7 inch film holder and film. The film in the holder is placed over a lead apron on the bracket table or raised chair seat until the tip of the x-ray cone touches the centre mark on the film holder. The film is exposed for a half second and developed. The blackened area should measure no more than 2¾ inches in diameter.

If 5x7 inch film is not available, the test can be done with periapical film in the following manner. Two lines are drawn at right angles on a sheet of paper. Two circles, 2¾ inches and 4 inches in diameter and centered where the two lines intersect, are drawn. Periapical films are placed in the five locations shown in Figure 1 with the dots on the films marked and in the same locations. The films are outlined in pencil so that they can be replaced after processing. The tip of the x-ray cone is lowered until it touches the centre film over the intersecting lines. The films are exposed for a half second. After processing, they are replaced on the paper template and the size of the beam is measured.

If the beam size exceeds 2¾ inches, a lead diaphragm should be purchased

Table 1 Inherent filtration data (in machines before 1956).

X-ray machine	Equivalent inherent filtration (mm. aluminum)
General Electric CDX Models E, 70 and 90	1.5
Ritter Models B and Dual-X Model E (Century)	0.5 2.00-2.25
Universal	0.5-0.75
Weber Raydex	0.5
Westinghouse	0.7
XRM Models 2 and 3 before 1956 Models 2 and 3 since 1956 Model 90	0.75 2.00 2.00

TABLE 2 Dimensions for aluminum filters and lead diaphragm.

X-ray machine	Diameter of aluminum filter and lead diaphragm	Diameter of aperture in lead diaphragm
Fischer	2.44 inches	1.57 inches
General Electric*	2.00 inches*	*
Ritter	2.60 inches	1.55 inches
Weber	1.44 inches	0.89 inches
XRM	2.67 inches	0.86 inches

*For the General Electric CDX Machine, a lead diaphragm, containing an aperture 1¼ inches in diameter, is an integral part of the pointed cone. This aperture limits the diameter of the useful x-ray beam to 2.75 inches at the tip of the short pointed cone; therefore, no other lead diaphragm is required for this machine. When an aluminum filter is to be added, it must be large enough to cover the entire aperture in the lead diaphragm. 'Sticky wax' has been used successfully to hold filters and diaphragms in place.

from a dental supply company. Alternatively a diaphragm can be made from 4 lb. sheet lead (obtainable at plumbers' supply shops) using the specifications on inside and outside diaphragm dimensions provided in Table 2. The importance of this reduction in beam size is illustrated in Figure 2 which shows the effect of such alteration on the eye and thyroid gland.⁷

The amount of inherent filtration depends upon the radiation absorbed by the glass window of the x-ray tube, the oil which surrounds the tube, the opening

in the x-ray head through which the rays emerge, and the plastic cone. Added filtration is achieved by inserting in the path of the beam commercially pure aluminum discs of sufficient thickness to bring the total filtration to a required standard. Most machines manufactured since 1957 possess sufficient inherent filtration (Table 3). Using Table 1 as a guide, necessary additional filters can be obtained from a supply company or made from commercially pure aluminum. Such filtration removes the soft portion of the x-ray beam which irradiates soft tissues but does not contribute to the diagnostic exposure.

FILMS

Early in 1966 I enquired from five major dental supply companies in Toronto about the proportion of their sales of ultra-speed and regular speed film. Com-

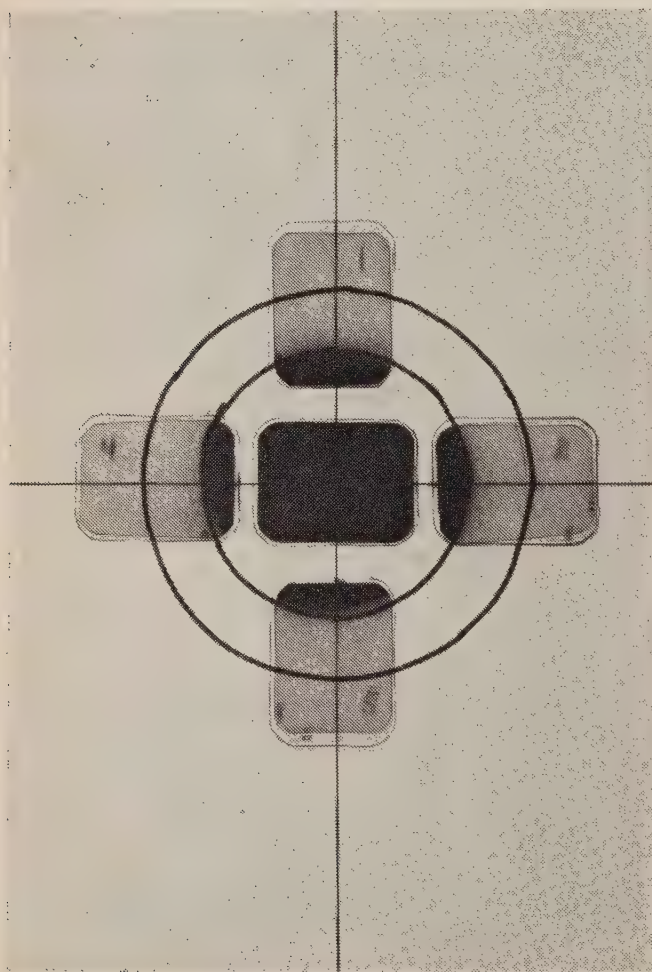


FIGURE 1 Filtration and collimation test. Films replaced on paper template after exposure. The darkened area shows the size of the beam.

FIGURE 2 (opposite page) Recommended beam size reduces radiation exposure. A, dark area represents the area of radiation exposure to patient during use of a dental x-ray unit with excessive beam diameter and inadequate filtration. The thyroid gland is in the primary beam and is receiving unnecessary exposure. B, dark area represents the reduced area of radiation exposure to patient during use of a dental x-ray unit having the recommended collimation and filtration. Unnecessary radiation exposure to the thyroid gland is eliminated. C, in this instance, excessive beam diameter and inadequate filtration results in unnecessary radiation exposure to sensitive eye tissue. D, recommended collimation and adequate filtration eliminate unnecessary radiation exposure to the eye. (Courtesy of Michigan Department of Health.)

pany A sold equal quantities of regular and ultra-speed film in the Toronto area during the previous six months; yet, in the whole of Canada this company sold three times more ultra-speed than regular film. The manager, who had recently come to Toronto, stated that radiology instructors in western Canada stressed the use of ultra-fast film. Company B sold 60.1 per cent regular speed and 39.9 per cent ultra-speed film. Company C sold 53 per cent regular speed and 47 per cent ultra-speed film. Company D sold 17 per cent regular film and 83 per cent ultra-speed film. However, its film is in group C of the ASA rating which makes it about half as fast as ultra-speed film marketed by its competitors (Table 4). Company E sold 22 per cent regular film and 78 per cent ultra-speed film. This is comparable to the Canada-wide sales reported by company A.

Evidently, a majority of Ontario dentists still use the slower film even though ultra-speed film has been available since June 1955. This may be due to inadequate instruction in the necessity of using the faster film or ignorance of how to use this film.¹⁰ Whatever the reason, the American Dental Association's *Guide to Dental Materials*¹¹ reminds us that high-speed film is the single most important factor in reducing exposure of the patient.

My enquiry about proportional sales of regular and ultra-speed film elicited the following observation from a spokes-



TABLE 3 Dental x-ray equipment data.

X-ray machine	Rated kVp	Rated milliamperage	Standard anode to cone tip distance (inches)	Standard beam diameter at cone tip (inches)	Rated internal filtration (mm. aluminum equivalent)
Fischer (open tube)	?	?	?	4.00	?
Fischer (closed-head)	55	5-15	?	4.00	?
General Electric CDX	65	10	8.00	3.00	1.40
General Electric 70	70	10	8.00	3.00	1.50
General Electric 90	50-90	10, 15	8.00	3.00	1.50
Philips Oralix (to 1957)	45	5	4.00	2.50	1.00
Philips Oralix (since 1957)	45	5	4.00	2.50	2.00
Ritter Model A		10		4.00	0.50
Ritter Model B	63	10	7.00	4.00	0.50
Ritter Model D	50-70	5-15	7.00	4.00	0.50
Ritter Model E (Century)	60-90	5-15	7.00	3.00	2.25
Siemens Heliodent	50	?	4.00	2.25	1.00
Siemens Heliosphere	?	?	?	?	?
Universal	?	?	7.25	?	0.50
Victor	55	10	?	3.00	0.75
Weber Model 1-11	45-70	5-15	6.25	4.00	0.50
Weber Model 12	50-90	1-20	?	3.50	0.50?
Westinghouse	?	?	6.25	?	0.75
XRM Models 1-3 (to 1956)	50-70	7-20	5.50	5.50	0.75
XRM Models 1-3 (since 1956)	50-70	7-20	5.50	5.50	2.00
XRM Model 90	50-90	7-20	5.50	5.50	2.00

This table is based on information derived from the manufacturers; from Barr, H. A. Oral Surg. 13:696, 1960; and from Richards, A. G. Oral Surg. 16:294, 1963.

man for one company: "There are still quite a number of x-ray machines in use of the older models which do not give satisfactory results with the ultra-speed film. I have checked with the service department regarding this and find that in quite a number of instances they have had dentists report that they have tried the ultra-speed film but do not get the definition which they require unless they use Radiatized Film." This, of course, is not true. The machine or the techniques must simply be modified for use with faster film. This can be accomplished by any one or more of the following methods: (1) increasing the target-film distance (long cone technique), (2) decreasing the milliamperage, (3) decreasing the kilovoltage, (4) increasing the filtration, or (5) replacing the mechanical timer with

an electronic timer.

The extended cone¹² takes advantage of the inverse square law so that exposure times will be in a range suitable for mechanical timers. Most mechanical timers are not accurate below time intervals of half a second. Moreover, a long open cone greatly reduces scattered or secondary radiation that is produced with the short pointed cone. This scattered radiation is a cause of fogging. It also contributes greatly to gonadal irradiation.

In x-ray machines with fixed milliamperage settings, the transformer can be adjusted to reduce the milliampere output. The mA-sec value (milliamperage x seconds) can be maintained by again increasing the exposure time interval on the mechanical timer.

TABLE 4 Speeds and exposure times of dental radiographic films.

ASA		FILM	kv	SHORT CONE						LONG CONE						
GROUP	RATING			50		65		70	90		50	65		70	90	
				7		10	15	10	10	15	7	10	15	10	10	15
				T-F IN.	10	5	8	8	8	8	8	16	16	16	16	16
B	3	MINIMAX-B		2 3/4	2	1 1/4	1 1/2	1	6/10		5		4	2 1/2		
	4	IFI-I		2	1 1/2	1	1 1/4	8/10	5/10		4		5	3	2	
		EK-R		1 1/4	1	8/10	5/10	4	5		3		2			
		DUPONT-D														
C	6	RINN-MF	1 1/4	1	6/10	8/10	5/10	1/3	4	2 1/2	3 1/2	2	1 1/2			
	12	MIN-EF • RINN-EF IFI - SUPER	2 3/4	5/8	1/2	1/3	4/10	4/15	1/6	2	1 1/4	1 3/4	1	6/10		
E	24	EK-U	1 1/4	3/8	1/4	1/6	2/10	2/15	1/12	2 1/2	1	6/10	8/10	5/10	1/3	
	30	DUPONT-LF	1	1/4	1/5	2/15	1/6	1/10	1/15	2	8/10	5/10	6/10	4/10	4/15	
		RINN-HF														
	48															

Published tables by Wuehrmann¹³ give the required values for changes in the kilovolt peak (kVp). Many machines, however, are not amenable to kVp adjustments.

Extra filtration, with either aluminum or copper and aluminum,¹⁴ can be used so that the film will not be overexposed. However, copper and aluminum filtration produces a longer scale of contrast which some dentists may not desire.

The electronic timer gives the shorter intervals used with the fastest film and a short cone. This, however, is the most expensive method of conversion for fast films.

The long cone technique is probably best for use with fast film because (1) it permits reduced irradiation of the film, (2) the image is less distorted than with the short cone technique, (3) there is less fogging, (4) there is less gonadal

irradiation, and (5) there is reduced skin exposure.

Exposure Technique. — Wainwright,¹⁵ in an unpublished survey of nearly 250 practices in 28 states, found that a majority of the dentists used faulty exposure and processing techniques. They were overexposing and underdeveloping the films. This causes excessive irradiation of the patient and detracts from the quality of the picture.

Development. — In practice, not one but two developing agents are used to take advantage of the phenomenon of ‘super-additivity.’ Put simply, this means that the combined effect of two developing agents is greater than that which might be expected from addition of the effects of each used singly.¹⁶ One of these agents, Metol or Phenidone, acts over a very



FIGURE 3 Series of radiographs developed in freshly mixed high energy developer for one to 10 minutes at 68°F. The numbers on the radiographs indicate minutes of developing time. If the solutions had been older, the pictures 1-4 probably would be very light. Radiographs were taken on an Alderson-Rando phantom. (Courtesy of the Ontario Cancer Foundation.)

wide range of temperatures. This very energetic chemical is responsible for detail in the radiograph. The second agent, hydroquinone, exerts a delayed effect on the emulsion. This chemical, acting slowly over a narrow range of temperatures, accentuates contrast in the picture through a balance of greys and blacks. The deeply exposed areas are brought out in the black and the lightly exposed areas are brought out in the grey tones.

When an overexposed film is underdeveloped, the film is usually left in the developer only long enough for the Metol to act. The result is a film of grey tones with very little contrasting black. If this film remains in the developer long enough

for the hydroquinone to work, the resulting image is too black. An overexposed film given proper development is simply too dark to be useful.

Updegrave¹⁷ asserts that a properly exposed film cannot be overdeveloped. Prolonged development (Figure 3) does not blacken such a film (but may cause some additional fogging from the developer). This phenomenon can serve as a simple test whereby the dentist may check his own exposure technique. He leaves the film in the developer for an extra minute or so. If this intensifies the black tones, the film has been overexposed. If his film is routinely black, he is overexposing and underdeveloping the film. If so, he

should check the exposure and development time against recommended exposure and development specifications enclosed with the film package. Precise time and temperature control is essential for their proper development. Once this is achieved, a standardized processing technique will consistently produce high quality radiographs.

Fog on film may be attributable to age, unintentional exposure to radiation, dark-room light leaks, an inadequate safelight or improper storage. Even microconcentrations of stannous fluoride from the fingers of the dentist, the dental assistant or from the patient's mouth have been known to cause chemical fogging or staining of x-ray film.¹⁸ Updegrave¹⁷ advocates the following method of periodically checking for the presence of fog. One of two unexposed films is processed under the usual conditions; the other, after being unwrapped and fastened to the film clip, is immersed directly in the fixer. After washing and drying, both films should possess equal transparency. Fogging is present if one film is more grey than the other.

The method for testing the safelight is to open the film package under the safelight. Next, the film is placed with a superimposed coin on the loading bench for one minute. The film is then processed as usual. If the outline of the coin appears on the film, the safelight is not safe.

RADIATION PROTECTION

Dentists do not seem to be cognizant of the presence or importance of secondary radiation. Richards,¹⁹ with his pinhole camera, has shown how the nose cone of the x-ray machine and the head of the patient both act as sources of scattered radiation. The filter of the x-ray machine becomes a potent source of radiation which scatters rays far beyond the confines of the area irradiated by the useful beam. This scattered radiation degrades the radiographic image and contributes to gonadal exposure of the patient and to whole body exposure of the dentist.

Figure 4 shows that the pointed plastic cone is a principal cause of secondary

radiation to the gonads of the patient. The use of a lead apron²⁰ and the open end long cone both help to diminish this source of radiation.

The 16 inch source film distance achieved with the long cone produces images possessing better definition and less enlargement than can be produced with an 8 inch (short cone) distance. However, the longer cone is cumbersome to use and, in some installations, requires the extension of the bracket arm of the apparatus beyond its physical limits.²⁰ A solution to this dilemma may be found in a redesigned tube head recently described by Richards²²

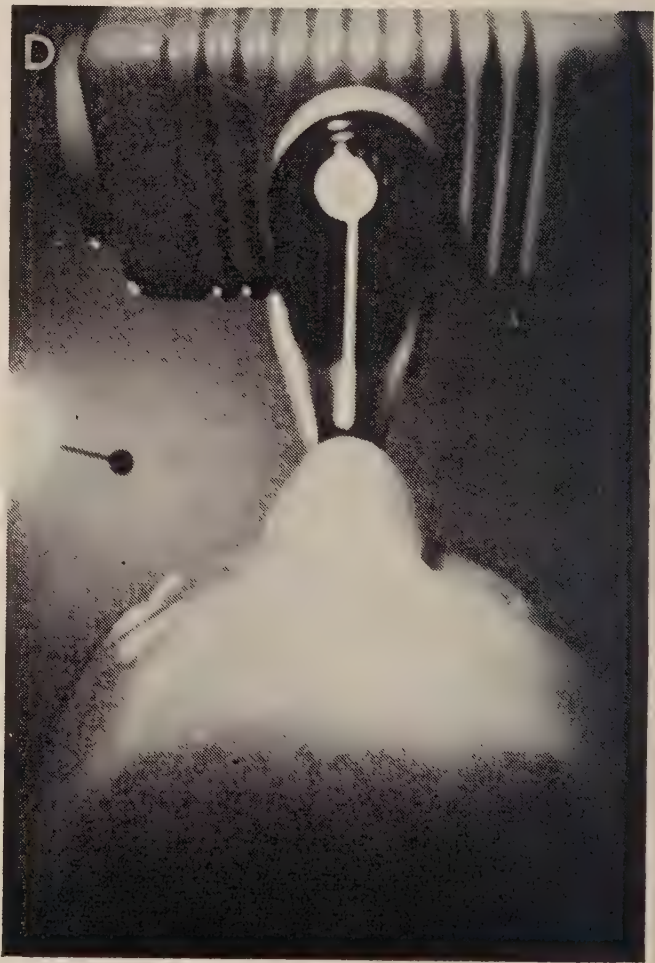
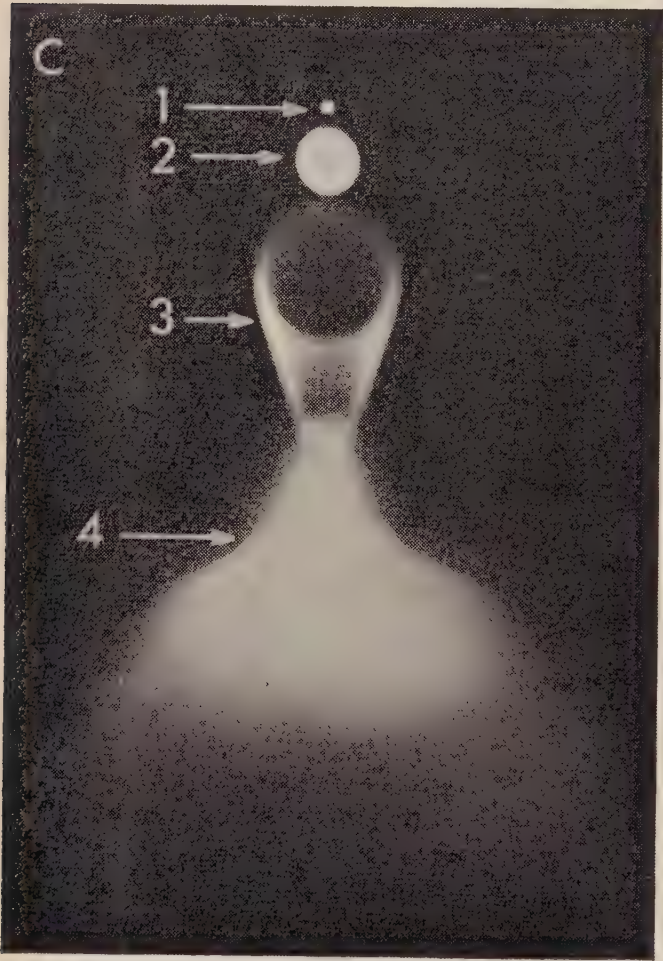
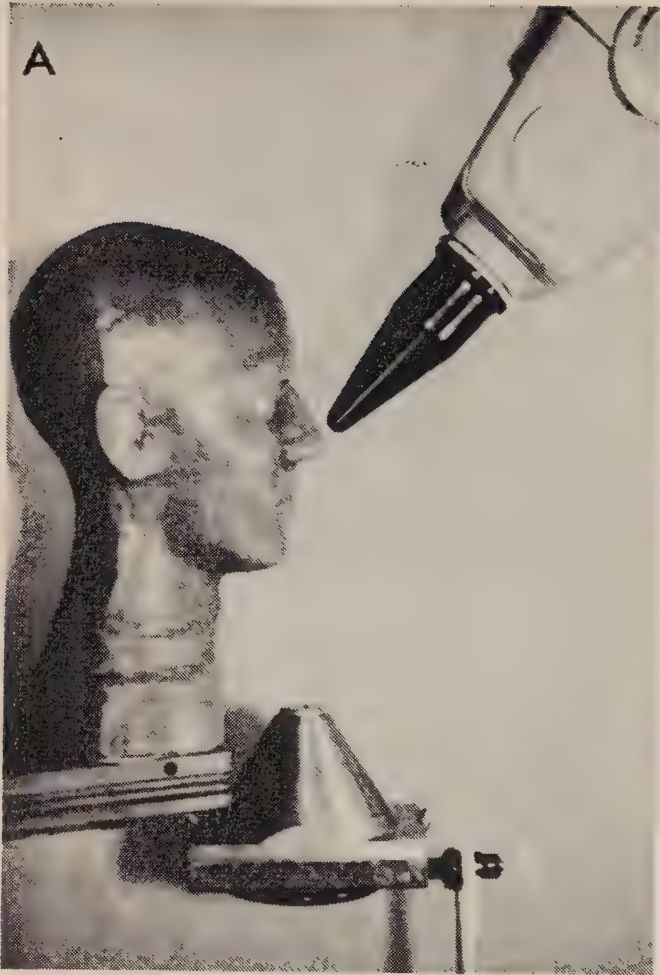
Focusing of the beam in the long cone should not be done by the tube itself, but rather by the small aperture or collimating diaphragm, so that the beam is limited by this diaphragm. Otherwise, reflection of the primary beam along the walls of the tube scatters the rays and fails to produce the high definition picture that is so specific with the long, open end cone technique (Figure 5). However, even with the small aperture, there is still some scattered radiation from the aluminum filter, as was shown in Figure 4. Ideally, there should also be a series of baffles to absorb this source of scattered radiation. Such baffles are inherent in the new tube head that Richards²¹ describes.

Occupational exposure of the dentist to scattered radiation imposes the need for additional precautions in order to reduce this hazard. Figure 6 shows the recommended placement of the dentist in relation to the patient for maximum safety during x-ray projection.²³

The daily permissible workloads (Table

TABLE 5 Permissible daily workload with 65 kVp and 90 kVp at 10 mA.

Distance between patient and operator (feet)	Permissible daily workload with 65 kVp (seconds)	Permissible daily workload with 90 kVp (seconds)
2	60	25
3	140	60
4	240	105
5	380	165
6	540	240
8	960	425
10	1,500	665



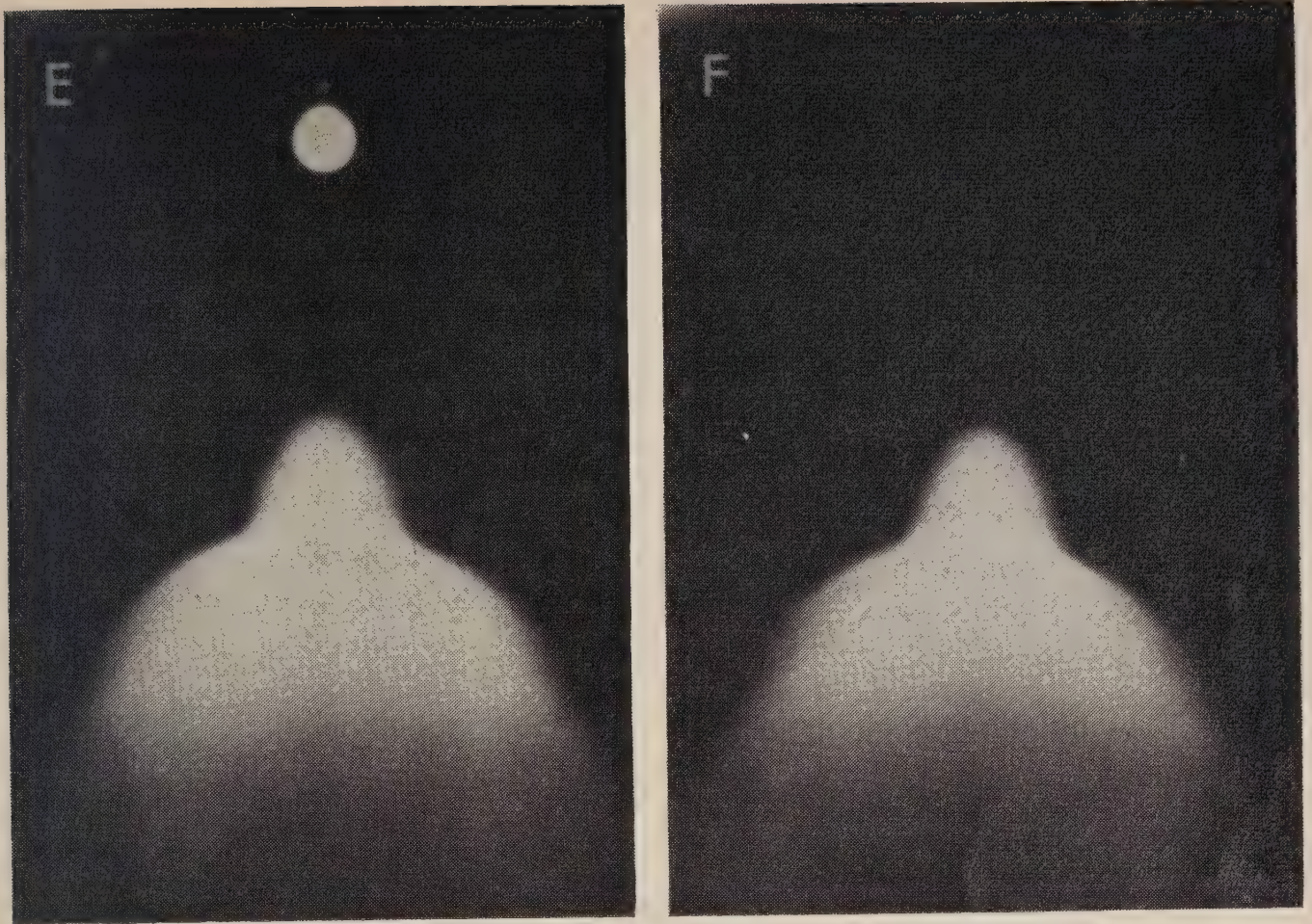


FIGURE 4 A, photograph depicting position of pinhole camera relative to phantom head and x-ray apparatus equipped with a pointed plastic cone. B, photograph made with pinhole camera portraying the nose and lower half of phantom's face, and the head and pointed plastic cone of the x-ray apparatus. A light fixture, hanging from the ceiling of the laboratory, is also visible. C, radiographs made with pinhole camera of the sources of radiation which expose the reproductive organs of the dental patient. These sources are: (1) leakage radiation from the focal spot of the x-ray tube; (2) scattered radiation from the aluminum filter and other strongly irradiated metallic parts of the apparatus which are located behind the lead diaphragm; (3) the irradiated portion of the plastic cone; and (4) the subject's chin, oral region and nose. D, composite print of B and C, relating the sources of the invisible x-rays to the visible details of the photograph. E, radiographs made with pinhole camera and x-ray apparatus equipped with open-ended plastic cone. F, radiograph made with pinhole camera and x-ray apparatus equipped with a shielded open-ended plastic cone. (A. G. Richards. J. Amer. Dent. Ass. 65:1, 1962.)

5)³ show, of course, that the greatest safety is in distance. The length of the timer cord is not so important *per se* as the actual distance between the operator and the patient's head during the exposure. But much can be done merely by holding the timer at arm's length. Even these few feet increase the safety factor greatly.

Dentists who take radiographs of the skull or hands and wrists should use a method whereby the primary beam does not continue onward to expose other portions of the body.¹³ For example, if the subject is seated facing a table for a

radiograph of the wrist, the primary beam may continue to the gonadal area. Merely having the patient sit sideways and at arm's length can greatly reduce this danger.

The Department of National Health and Welfare offers at nominal cost a radiation monitoring service to persons who are occupationally exposed to radiation. But of the more than 6,400 dentists in Canada, only 380 dental groups were using the service in January 1967.⁹ Film badges are sent to participating dentists every two weeks. A report of the amount of exposure is kept on file and could be a

useful medico-legal safeguard that dentists should not overlook. Film badges may be secured from the Film Monitoring Service, Radiation Protection Division, Department of National Health and Welfare, Brookfield Road, Ottawa 8, Ontario.

VIEWING THE FILM

Worth²⁴ gives authoritative and concise directions for viewing the finished film. He says: "holding a dental radiograph up to the daylight or above the head toward artificial light is the most common method of examination, but this procedure is not recommended despite its ease. Instead the examiner should use a viewing box which emits a good amount of diffused light over an area sufficient to include the film and no more. The entrance of strong light into the examiner's eye from the sides of the radiograph reduces the

acuity of vision. A magnifying glass of about three diameters and about 4 inches in diameter is essential. Thus equipped the examiner must give his undivided attention to the study of every part of the radiograph. It is wise for him to adopt some orderly system which will insure that every portion of every film comes under study. In periapical films, every part of each tooth must be carefully examined. It is advisable to use a pointer of some kind which, by tracing the outline of each tooth and its anatomic structure, ensures the study of all structures."

The ability to vary the intensity of illumination can also be helpful when viewing a very dark film.

SURVEY

Many dentists do not appreciate the shortcomings of their radiological methods

TABLE 6 Checklist for improved radiographic technique.

Characteristic	Check	Correction
Machine		
Beam size	Films on paper template exposed, developed, and remounted	Purchase diaphragm or make one as per Table 2
Filtration	If machine is older than 1956 check Table 1, then unscrew cone to be sure added filter is present. If newer than 1956, it has proper inherent filtration	Purchase filter from supply company for your machine
Timer	Mechanical timers not accurate below 1/2 second for fast films	Simplest method is to use the long cone technique
Film		
Speed	Check Table 3	Use fastest film available
Freshness	Develop unexposed film; it should be clear	Purchase only minimal amount of film at a time (under 3 months' supply)
Exposure	Overdeveloped film should not show darkening	Check exposure factors in Table 3
Development	Sight method not acceptable	Full time-temperature development required Use boiled water in diluting solutions; it retards oxidation Light-tight darkroom and proper safelight are important
Scattered radiation protection		Lead apron on patient Long distance between patient and operator Film monitoring service Shielded open and long cone
Viewing		Films mounted in opaque open window mounts and viewed with variable light source and magnification

and equipment. Some medical radiologists²⁵ likewise express concern over the use of diagnostic radiation in dental practice. Self-regulation by the dental profession is therefore a prudent alternative to possible governmental control of this valuable diagnostic medium. Provincial dental groups could institute surveys to determine the safety of equipment in use and, more important, to provide the dentist with information concerning his machine and methods. Such surveys should ascertain (1) the beam size and filtration employed, (2) the type and speed of film used, (3) the exposure time employed (to determine possible overexposure), (4) the time and the manner (time temperature or sight method) of development used, (5) the adequacy of the darkroom, (6) the type of cone used (open or pointed; long or short), (7) the customary operator-patient head distance during exposure, (8) whether a lead

apron is used, and (9) whether the dentist uses a radiation monitoring service.

SUMMARY

Methods are described whereby the dentist can check the collimation and filtration characteristics of his own x-ray machine and evaluate his exposure and development techniques. Gonadal radiation can be reduced by (1) diminishing the beam size to $2\frac{3}{4}$ inches diameter, (2) using filtration equivalent to 2 mm. of aluminum, (3) employing the fastest film, and (4) using a long, open end tube instead of the short pointed cone. Precautions for avoiding exposure to scattered radiation are outlined and suggestions are offered for proper viewing of the radiograph. A survey of Canadian dentists' current radiological practices is

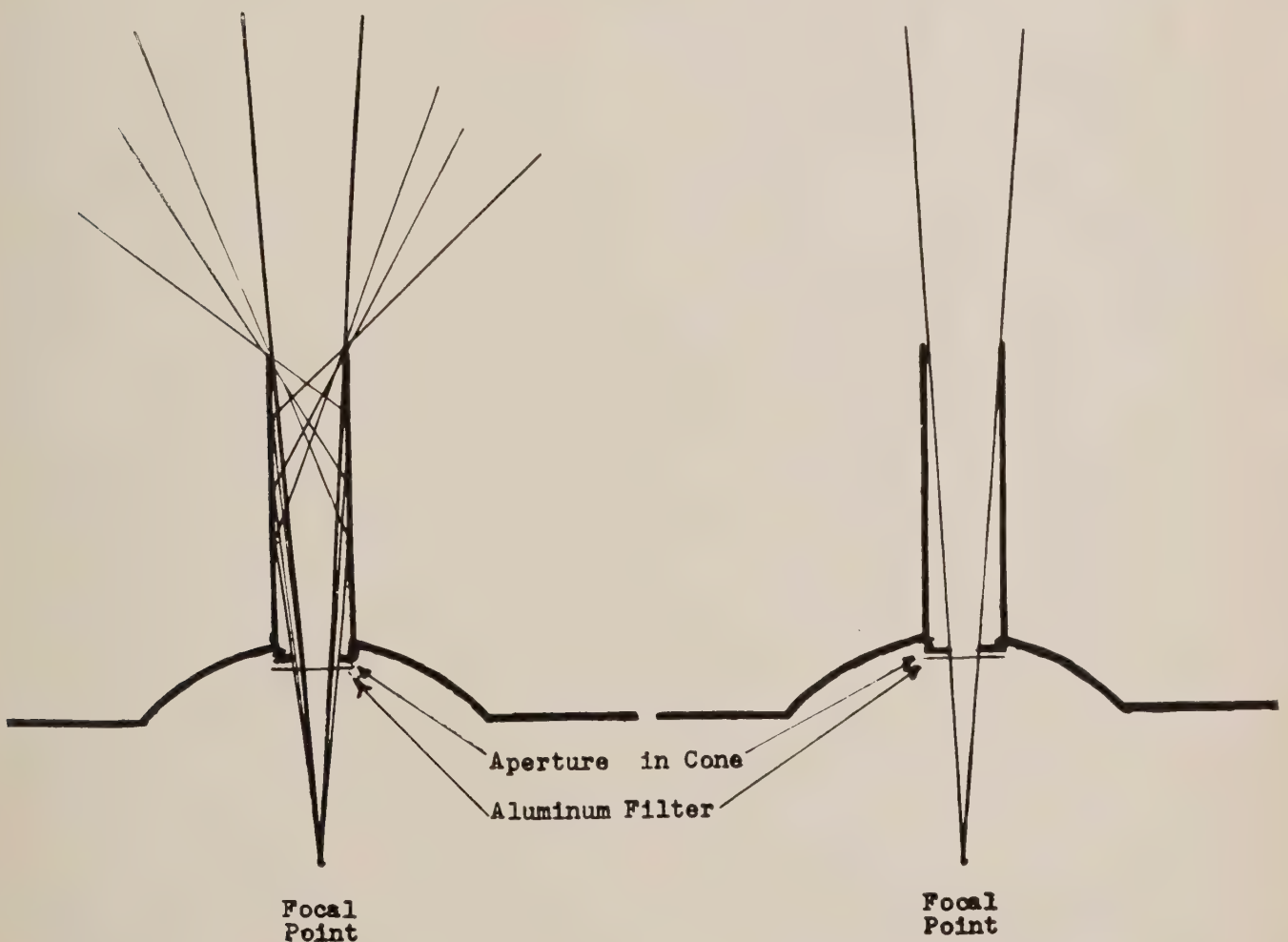


FIGURE 5 In collimating the beam with the long cone, the size of the aperture is important. The aperture should be the constricting factor rather than the end of the tube. Left: a large aperture produces scattering in the tube and some fogging of the film. The aluminum filter still produces scattering; therefore additional baffles in the cone would be desirable to absorb this scattered radiation.

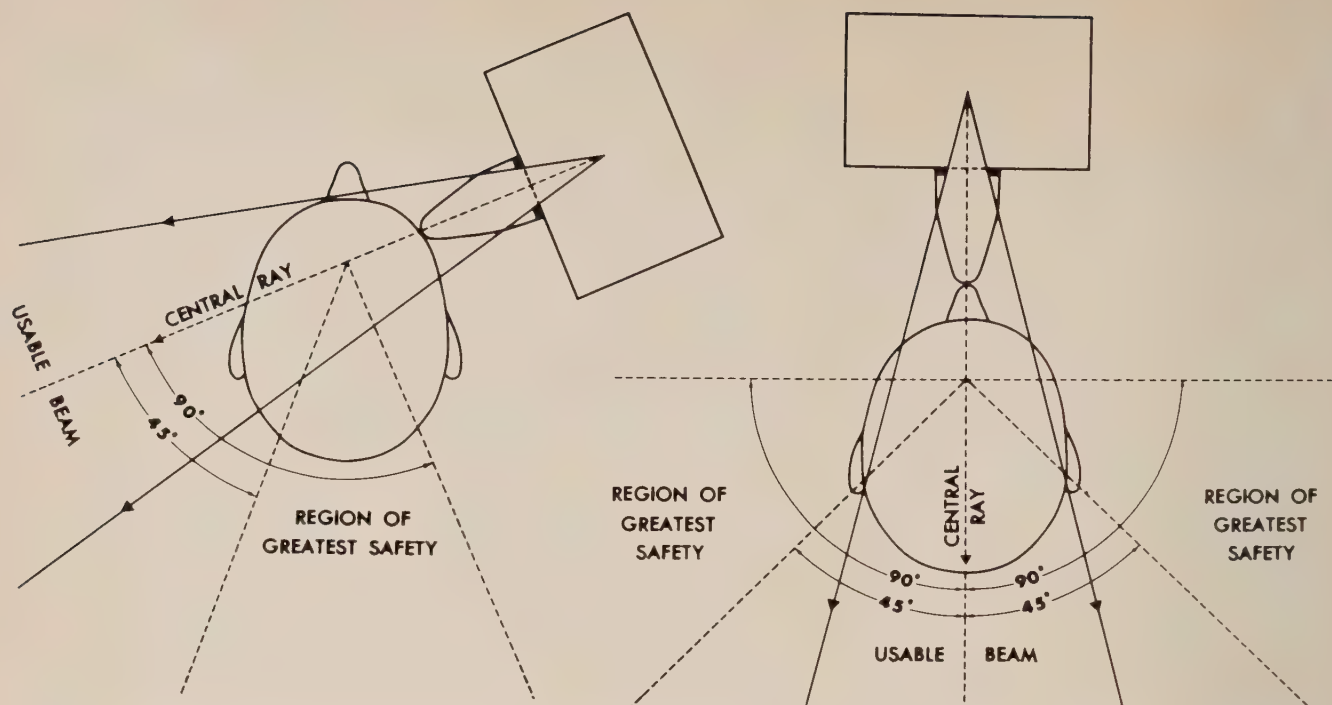


FIGURE 6 Left: diagram illustrating the position of greatest safety for all projections except the central incisors. It is located 45 to 90 degrees to the central ray, but the operator must stand behind the patient's head. Right: diagram illustrating the two positions of greatest safety during the projection of the central incisor region. They are located on each side of the patient's head at an angle of 45 to 90 degrees to the central incisor. (A. G. Richards, *Dent. Radiogr. Photogr.* 37:51, 1964.)

strongly advocated as a prerequisite for an educational campaign to ensure consistent radiographs of maximum diagnostic value.

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L'odontome composé multiple associé avec des masses kératinisées

Compound composite odontome associated with keratinizing masses

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L'article rapporte un cas d'odontome composé multiple enlevé de la région mandibulaire. La lésion révèle la présence de quelques foyers de calcification et de nombreuses petites dents entre les espaces interstitiels que l'on trouve généralement dans l'odontome composé associé avec des masses kératinisées. La contrepartie de cette tumeur buccale est l'épithélioma calcifié de Malherbe, tumeur de la peau caractérisée par la présence de cellules basales et de cellules fantômes qui ont la possibilité de se calcifier. On a souvent vu la lésion buccale associée à des kystes odontogéniques, mais rarement à des odontomes. Seulement trois autres cas d'odontome avec masses kératinisées et foyers de calcification ont été rapportés, tous affectant des individus très jeunes de sexe féminin. Ce fait démontre la multi-potentialité de l'épithélium dentaire.

■

A complex composite odontome was removed from the right cuspid region of the mandible of a six year old girl. The interstitial tissue which separates the numerous small teeth commonly found in such odontomes contained masses of kera-

tin and some foci of calcification. The counterpart of this lesion can be found in the epithelioma of Malherbe. The latter is a tumour of the skin characterized by basal or ghost cells which may undergo calcification. Recent reports associate the oral lesion with odontogenic cysts rather than with odontomes. There are only three recorded instances of odontomes with keratin and foci of calcification. All three occurred in young females. These features served to underline the multipotentiality of the dental epithelium.

Les odontomes peuvent être considérés comme des tumeurs mixtes d'origine dentaire au sens large,¹ ou mieux, des anomalies du développement dentaire ou hamartome.² Ils proviennent d'une prolifération atypique et limitée des cellules de la couche externe de la gaine épithéliale du germe dentaire.

L'odontome comprend ordinairement tous les tissus d'une dent. Il se compose au début de tissus mous. Plus tard, il termine son développement par la calci-

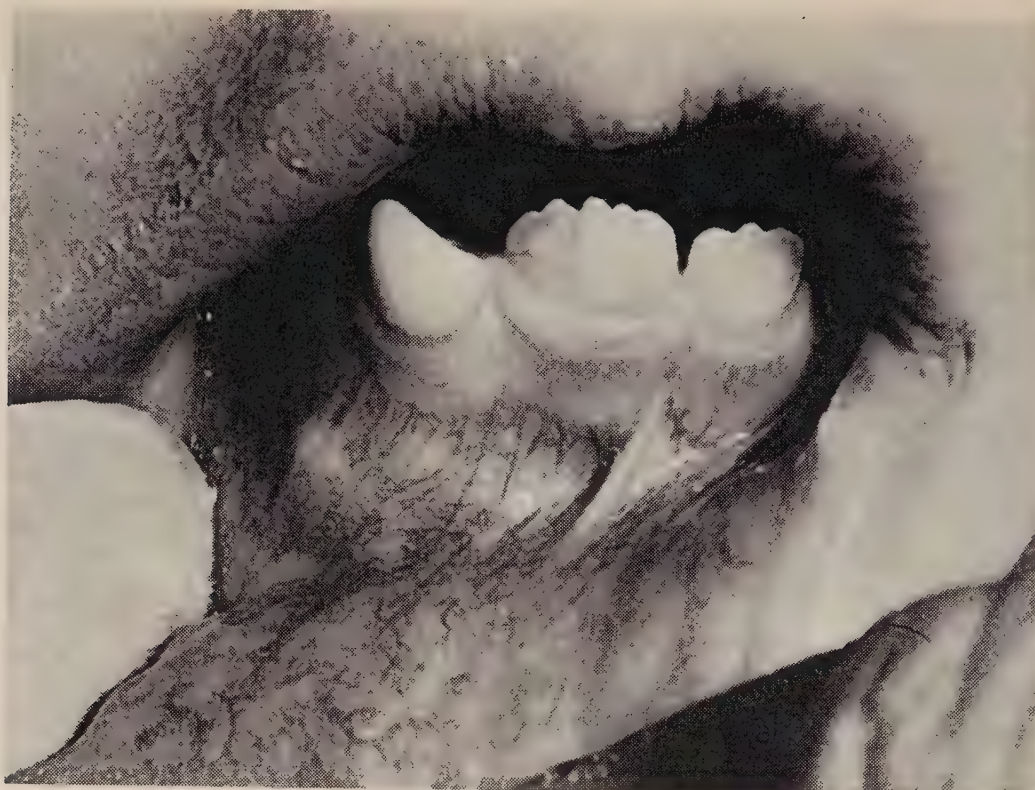


FIGURE 1 Apparence clinique.



FIGURE 2 Film périapical de la lésion.

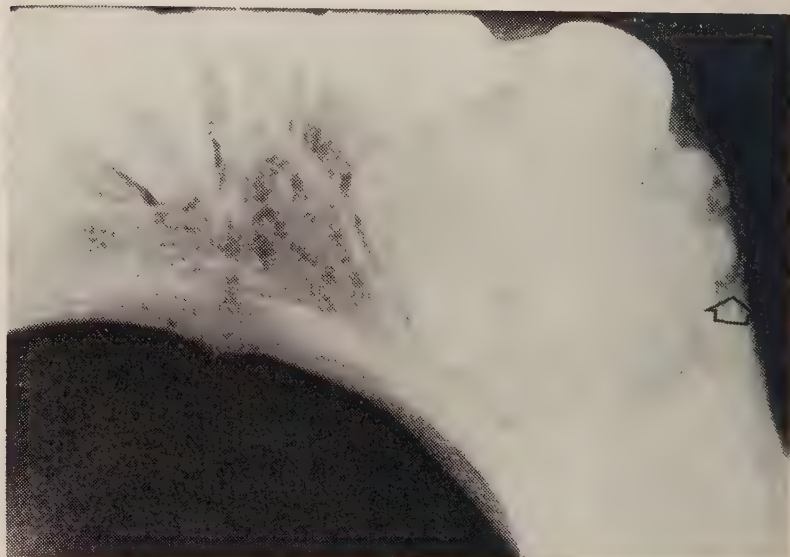


FIGURE 3 Vue occlusale illustrant l'expansion de la corticale osseuse.

fication et prend sa forme définitive.²

Les odontomes sont classifiés par l'American Academy of Oral Pathology dans la catégorie des tumeurs odontogéniques mixtes (ectodermique et mésodermique). On en distingue cinq formes dont les deux plus fréquentes sont: l'odontome composé multiple et l'odontome

composé complexe, les autres formes plus rares étant l'odontome kystique, l'odontome géminé et l'odontome dilaté.

L'odontome composé multiple est habituellement constitué de deux ou de plusieurs masses de tissus dentaires solides. Ces amas se disposent de façon bizarre. Ils ont l'aspect de multiples

petites dents de forme rudimentaire et sont souvent associés à la présence d'une dent incluse. Pouvant parfois empêcher l'éruption de certaines dents, l'odontome composé multiple se voit souvent au maxillaire supérieur, mais on peut aussi le rencontrer à la mandibule. Ordinairement il est de volume réduit, asymptomatique et on le découvre généralement lors d'un examen radiologique de routine. L'étiologie en est inconnue, mais on a mentionné qu'un traumatisme local ou une infection pourraient amener la formation d'une telle lésion.³

PRÉSENTATION D'UN CAS

Une jeune patiente, M. T., âgée de six ans, est conduite en consultation au Département de stomatologie de la Faculté de chirurgie dentaire de l'Université de Montréal, au sujet d'une excroissance dure, située du côté buccal dans la région de la canine inférieure droite. Sa mère affirme que cette masse est présente depuis l'âge de deux ans et que les incisives latérales primaires n'ont pas fait éruption.

Examen clinique. — L'examen clinique démontre la présence d'une bosse de forme ovale, de consistance très dure,

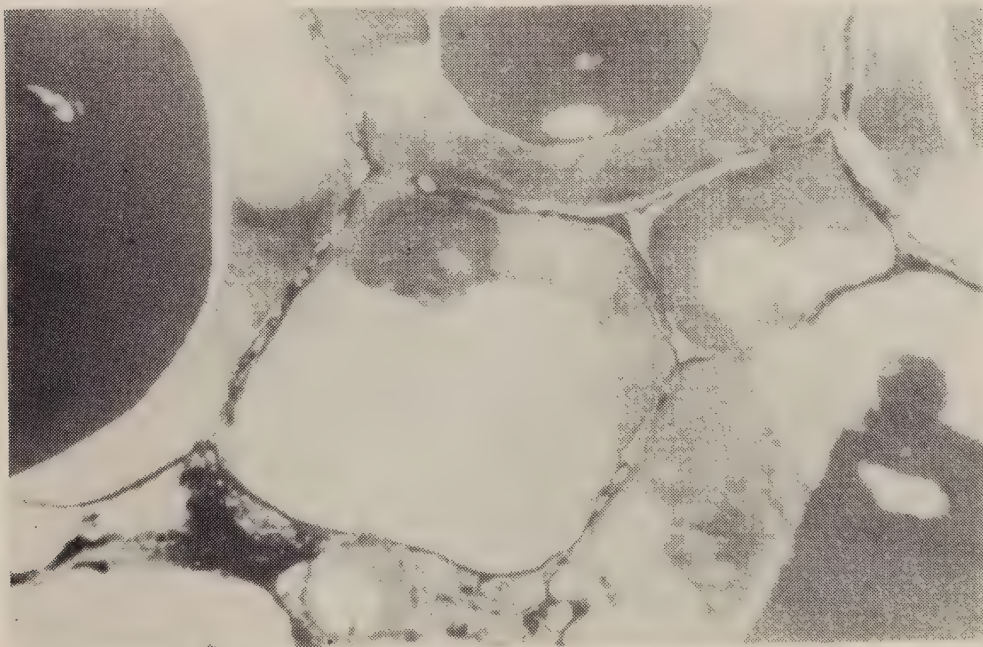
ayant de 12 à 15 mm. de diamètre. Cette proéminence se situe dans le repli muqueux du côté buccal sous la canine inférieure droite (Figure 1). La muqueuse dans cette région est de couleur et de texture normales. A la mandibule on voit les centrales et latérales permanentes, ainsi que les canines et molaires primaires.

Examen radiologique. — Un film périapical de cette région révèle la présence d'une masse radiopaque de forme ovale



FIGURE 4 Vue macroscopique du spécimen démontrant la présence de multiples petites dents.

FIGURE 5 Email dissout, dentine, tissu pulpaire. H.E. x25.



au contour légèrement irrégulier. Une mince ligne radiotranslucide borde la lésion qui mesure environ 17 x 15 x 13 mm. (Figure 2).

Sur le film occlusal, il nous est possible de constater le diamètre passablement large de la tumeur, et de distinguer une légère expansion de la corticale osseuse mandibulaire du côté buccal. L'ensemble de la lésion semble être composé d'une multitude de petites masses opaques de grosseur variée (Figure 3).

Diagnostic pré-opératoire. — Se basant sur l'examen clinique et l'apparence radiologique, on pose le diagnostic d'odontome composé, soit de type multiple ou de type complexe, et on recommande l'énucléation de la tumeur.

Bilan médical. — La patiente est admise à l'hôpital Sainte-Justine pour les enfants et l'on obtient une consultation du Département de médecine pour un bilan médical pré-opératoire. Les analyses et examens de routine sont négatifs, l'enfant étant en bonne santé. On décide de procéder à l'intervention chirurgicale.

Intervention chirurgicale. — Trente minutes avant l'intervention, on administre par voie intramusculaire une prémédication de 40 mg. de méperidine (Démerol) et de 0.2 mg. d'atropine. Sous anesthésie générale endotrachéale, on pratique une incision sur la crête alvéolaire s'étendant de la première molaire inférieure droite jusqu'à la centrale avec une bifurcation à 45 degrés vers le repli muqueux à sa partie antérieure. Un lambeau de muco-périoste couvrant l'expansion corticale dans la région de la canine mandibulaire est ensuite relevé. La canine et les deux molaires primaires sont extraites. À l'aide d'un ostéotome, la couche osseuse corticale très mince est enlevée, exposant ainsi une masse encapsulée de 1.7 x 1.5 cm. Cette lésion est ensuite délivrée de la cavité osseuse, intégralement, à l'aide de curettes (Figure 4).

Le champ opératoire est irrigué avec une solution aqueuse saline. Le saignement est contrôlé par tamponnement. On insère du "Surgicel" dans la cavité et le lambeau est suturé avec de la soie 000. La

patiente quitte la salle opératoire en bonne condition.

Description microscopique. — L'examen à faible grossissement ne révèle rien de spectaculaire si ce n'est la présence de multiples petites dents accolées les unes aux autres et composées d'émail, de dentine et de tissu pulpaire (Figure 5). Ces petites unités sont séparées par des bandes de tissu représentant la matrice de l'émail, l'émail dissout, des cellules épithéliales et du tissu conjonctif.

À certains endroits, nous notons la présence de formations particulières que Mézl⁴ a décrit sous le nom de globules ou lamelles améloïdes (Figure 6), ainsi que la présence de masses non calcifiées situées soit sur la surface de l'émail (Figure 7), soit entre l'épithélium et l'émail (Figure 8), ou complètement à l'intérieur de l'émail (Figure 9). Selon Mézl⁴ dans les odontomes, le tissu améloïde et les substances non calcifiées peuvent se rencontrer en quantité abondante et leur aspect peut être très varié.

Des formations arrondies, composées de cellules homogènes éosinophiliques très pâles dont on peut distinguer les contours, se rencontrent dans certains espaces interstitiels entre les dents (Figure 10). À l'intérieur de ces cellules, nous distinguons l'image effacée du noyau ou le fantôme cellulaire (Figure 11). Ces cellules qui sont des squames ou des foyers de kératinisation, caractérisent habituellement l'épithélioma calcifié de Malherbe et sont décrites sous le nom de cellules fantômes.^{5,6}

Diagnostic final. — Odontome composé multiple associé avec des foyers de kératinisation.

DISCUSSION

L'épithélioma calcifié de Malherbe est une tumeur bénigne de la peau qui se rencontre habituellement dans la région de la tête et du cou, et qui est caractérisée par la présence de cellules basales et de cellules fantômes ou momifiées qui ont la possibilité de se calcifier.

On a décrit à plusieurs reprises des

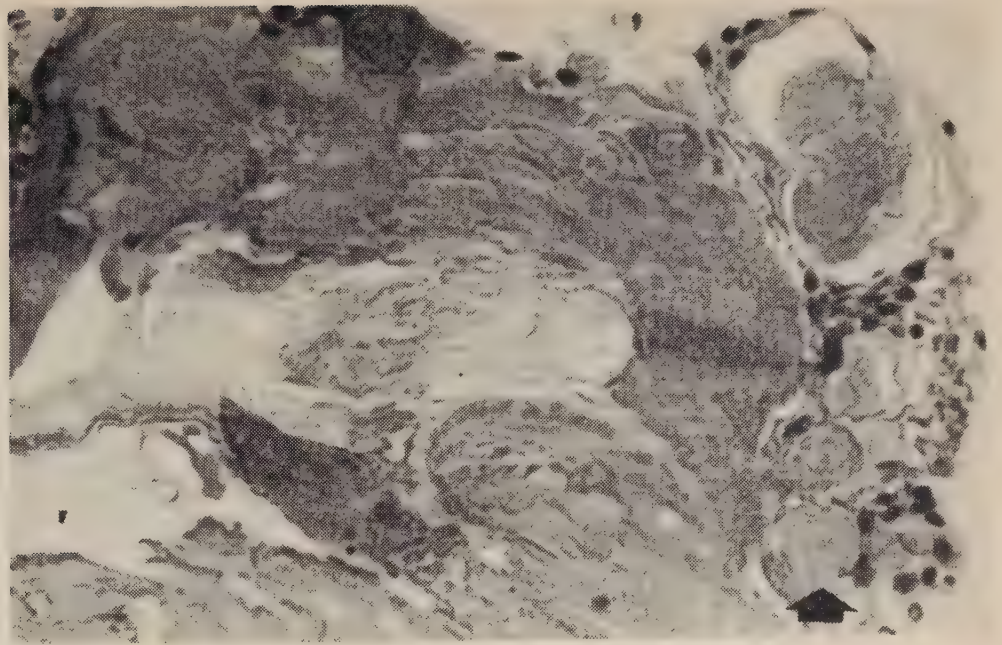


FIGURE 6 Globules ou lamelles ameloïdes. H.E. x250.

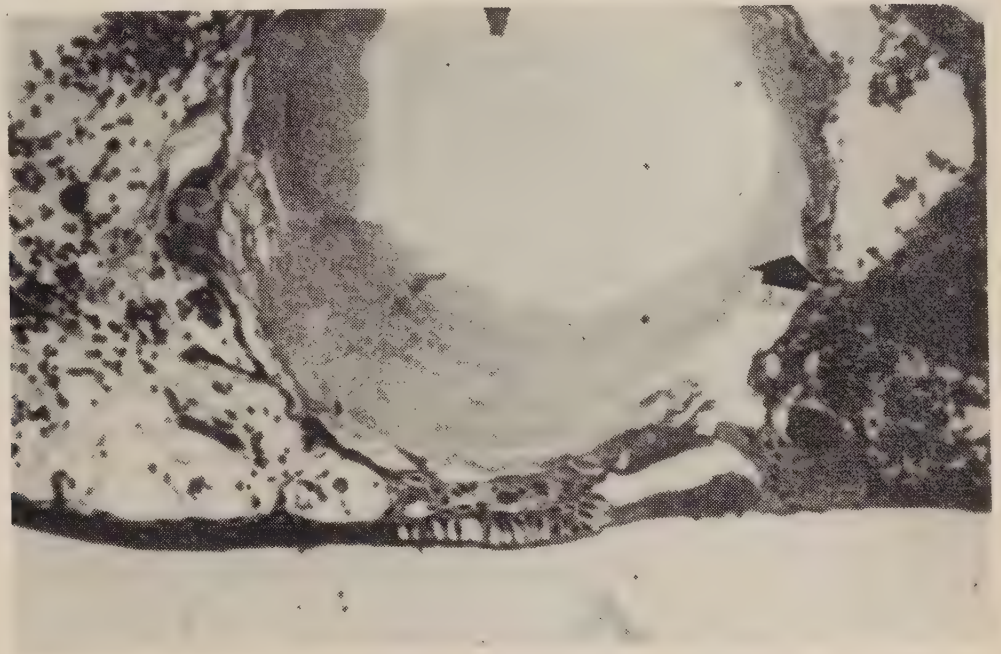


FIGURE 7 Masses non calcifiées situées sur la surface de l'émail. H.E. x100.

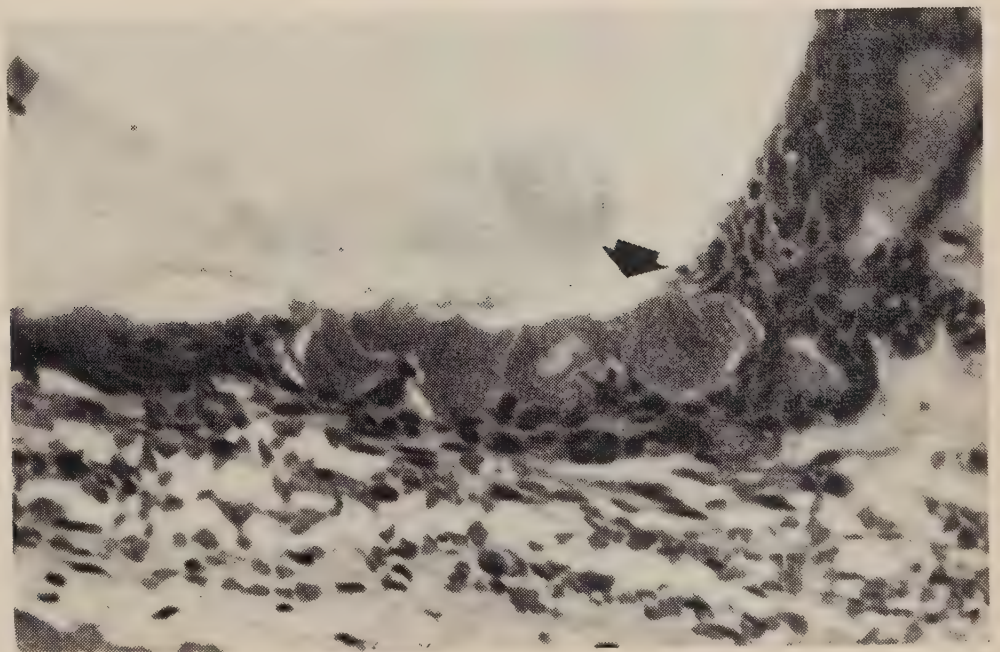


FIGURE 8 Masses non calcifiées situées entre l'épithélium et l'émail. H.E. x100.

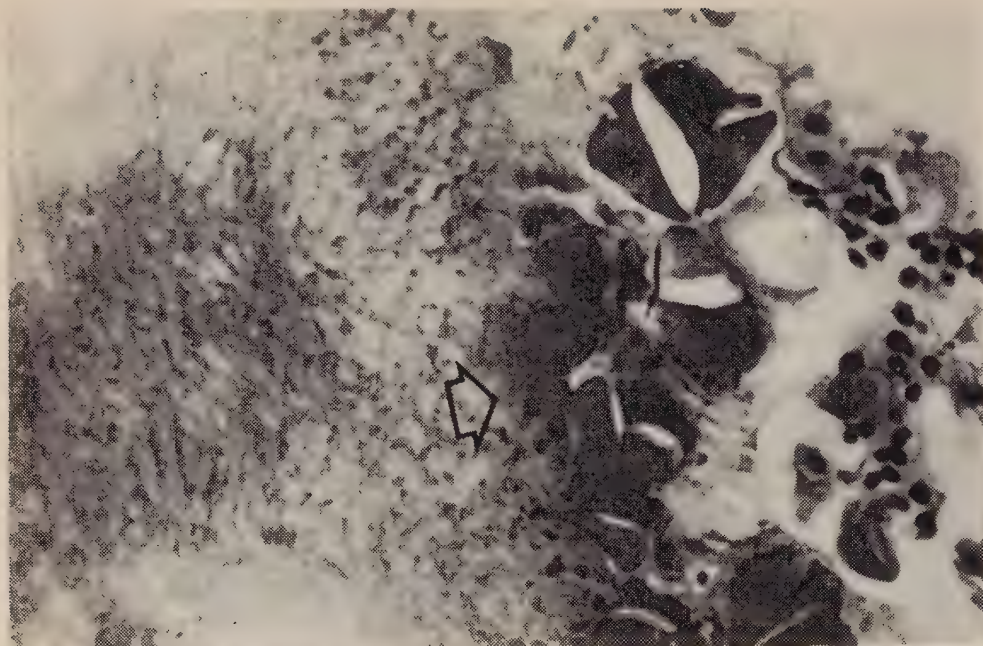


FIGURE 9 Masses non calcifiées enfouies dans l'émail. H.E. x250.

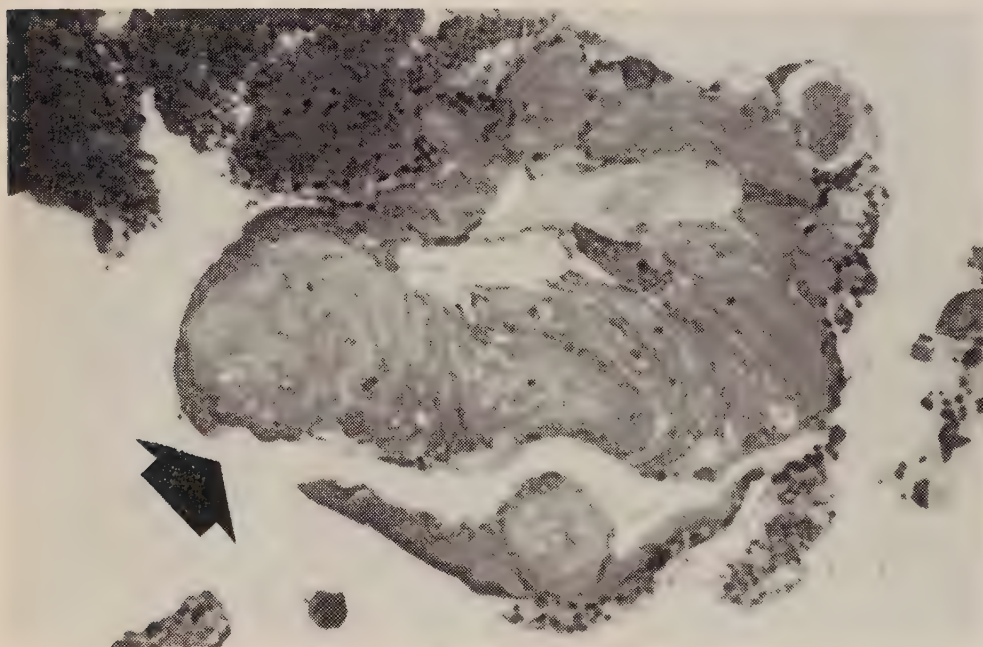


FIGURE 10 Îlot de kératinisation composé de cellules fantômes. H.E. x100.



FIGURE 11 Cellules fantômes, fort grossissement. H.E. x250.

TABEAU 1 Cas associés avec un odontome.

Auteur	Sexe	Age	Location
Gorlin, 1962	F	14	Maxillaire (sinus)
Gold, 1963	F	3	Maxillaire ant.
	F	15	Maxillaire ant.
Forest et Mercier, 1966	F	6	Mandibule ant.

lésions buccales qui, microscopiquement, ressemblaient à la lésion décrite par Malherbe; c'était la contrepartie buccale de la tumeur de la peau, et pour cette raison, certains auteurs l'ont appelée "Oral Malherbe." Cette dernière lésion représentait en somme un kyste odontogénique qui avait la possibilité de se calcifier et se rencontrait soit sur la gencive, soit dans le procès alvéolaire du maxillaire ou de la mandibule.⁷

En 1963, Gold⁸ en rapportait cinq cas qu'il désigna sous le nom de kyste odontogénique kératinisé et calcifié. Deux d'entre eux étaient associés à des odontomes composés.

En 1962, Gorlin⁷ faisait une analyse de 15 cas semblables décrits sous le nom de kyste odontogénique calcifié. Un d'entre eux était aussi associé à un odontome. C'est alors que Gorlin se demanda si le kyste n'était pas le premier stage dans la formation d'un odontome. A cause du nombre trop restreint de cas décrits dans la littérature, nous ne pouvons conclure d'une façon certaine. En 1964, Sycamore,⁹ et en 1965, Smith,¹⁰ rapportaient deux autres cas.

Nous constatons que cette anomalie affecte d'une façon sélective des individus très jeunes de sexe féminin. La lésion se rencontre au maxillaire supérieur ordinairement, mais aussi à la mandibule, avec une tendance dans les deux cas à se localiser dans la région antérieure.

Dans un odontome, il est tout à fait inusité de trouver des plages de kératine associées à des foyers de calcification situés dans les espaces interstitiels, entre les multiples petites dents en formation. La formation de tissu améloïde, de substance non calcifiée, de kératinisation

atypique, représente la multi-potentialité de l'épithélium dentaire.

RÉSUMÉ

- 1. Le kyste odontogénique calcifié correspond histologiquement à l'épithélioma calcifié de Malherbe rencontré sur la peau;
- 2. Cette lésion doit être distinguée de la tumeur de Pindborg;
- 3. Cette lésion, en de rares occasions, est associée avec un odontome;
- 4. L'article rapporte un cas.

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Use of removable acrylic splints in general practice

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Removable acrylic splints can aid in the treatment of various dental problems. This relatively simple and inexpensive device helps to distribute nonfunctional forces throughout the entire dental arch. Thus, individual teeth are not overloaded and subjected to occlusal trauma. Acrylic splints may be used in cases of bruxism, excessive tooth mobility, minor tooth movement, and in allowing a partial return to function of teeth with no functioning antagonists.

■

Les splints amovibles en résine peuvent faciliter le traitement de diverses affections. Cet appareil assez simple et bon marché permet de répartir les forces non fonctionnelles sur toute l'arcade dentaire. On évite ainsi la surcharge ou le traumatisme occlusal de certaines dents. Les splints de résine s'emploient dans les cas de bruxisme, de mobilité des dents et de déplacement mineur. Elles permettent aussi de rétablir partiellement la fonction des dents dépourvues d'antagonistes.

Removable acrylic splints, more commonly termed night guards or bite guards, have been advocated for the treatment of a variety of dental problems including temporomandibular joint disturbances,¹ bruxism,² and periodontic disease.³ This article describes the construction and use of such splints in situations encountered in the general practice of dentistry. Some of the applications utilizing the removable acrylic splint are illustrated.

Indications for its use are related to abnormal relationships of the gnathological system in which greater support for individual teeth and contact between teeth is desirable. By covering the occlusal surfaces of all the teeth with acrylic resin, the forces of nonfunctional movements are distributed to a maximum area of tooth support. Thus, a bracing or splinting effect of neighbouring teeth is transferred through the acrylic mass, thereby preventing excessive movement of individual teeth. This aids in eliminating secondary occlusal trauma. After careful adjustment of the acrylic resin on the occlusal surface, the maximum number of teeth are brought into contact in centric occlusion and excursive mandibular movements. This serves the double purpose of gaining the aforementioned maximum support for the teeth while helping

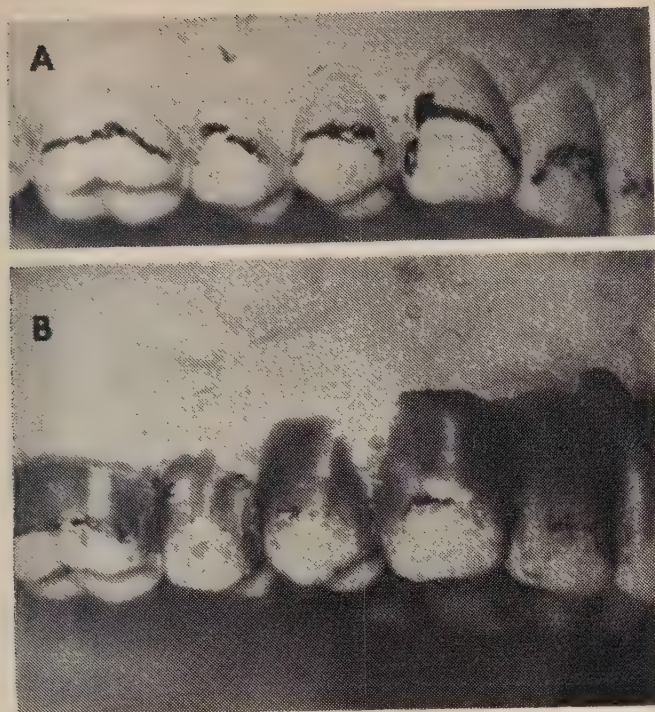


FIGURE 1 A, crest of contour is marked on the buccal and palatal surface of the maxillary cast. B, undercut areas are blocked out apical to the survey line.

to stabilize the splint. This type of removable appliance has the advantage of simplicity in design and construction. Also, since it is removable, it is easily cleaned and, since it does not touch the gingiva, it is not a source of irritation nor does it enhance the collection of gingival debris.

Various designs have been advocated for the construction of such splints. In regard to materials, vinyl resin,⁴ heat moulded plastic,⁵ latex,⁶ and self curing acrylic resin⁷ have been used successfully. Most dentists fabricating splints of this type use cured polymethylmethacrylate. This material affords minimum porosity and ease of cleaning.

Prior to the actual construction of the splint, it is necessary to adjust the shape of the teeth if gross occlusal discrepancies exist. Elimination of balancing side contacts as well as centric and working side premature contacts associated with mobile teeth are the primary objectives of such occlusal adjustment. Additionally, orthodontic therapy should be completed for patients who may benefit from minor tooth movement. Aligning the long axes of the individual teeth parallel to the forces of occlusion is a major objective of such minor tooth movement. Improved aesthetics and ease of cleaning are additional benefits.

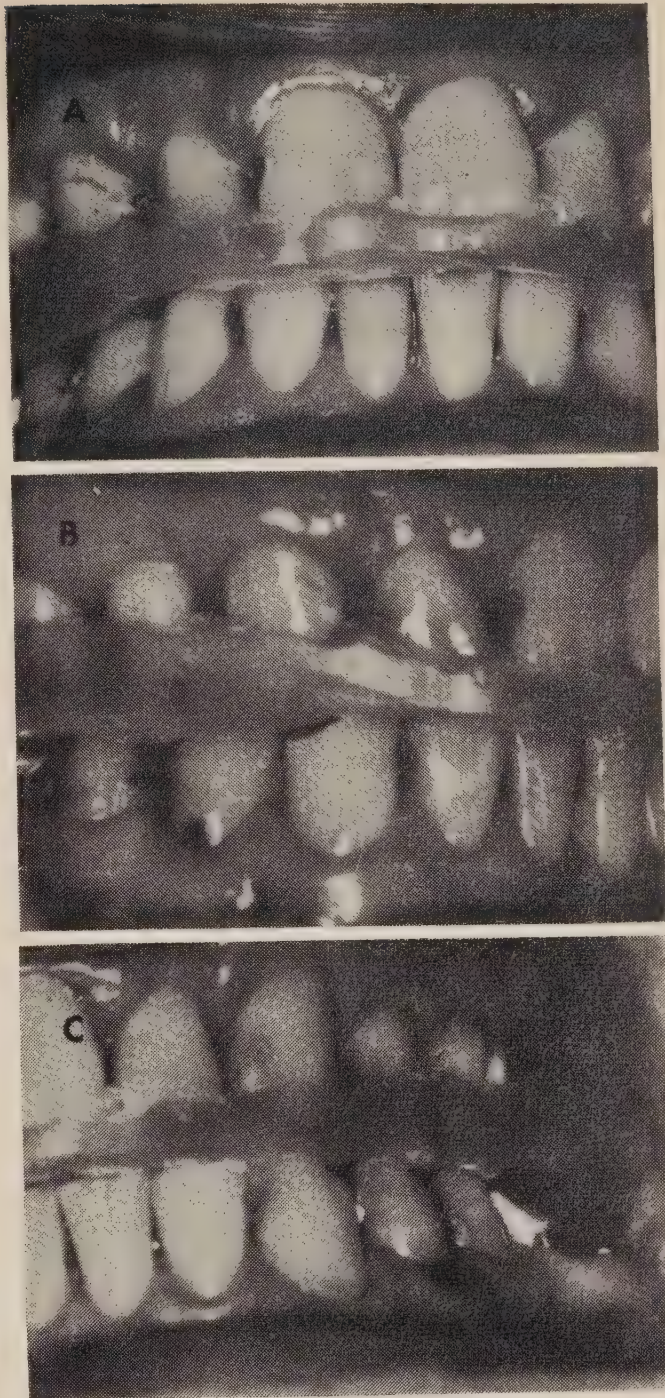


FIGURE 2 A, the wax pattern is retained on the maxillary arch and the jaws are related in centric occlusion as close as possible to centric relation. B and C, right and left views of uniform contact of mandibular teeth.

CONSTRUCTION

The following directions for construction of an acrylic splint embody aspects of the many techniques which have been reported in the literature.

Phase 1.—Impressions are taken and casts are prepared and mounted on an articulator in centric occlusion. The splint is usually designed to be placed on the arch where the teeth are most mobile. If the teeth are excessively mobile in both

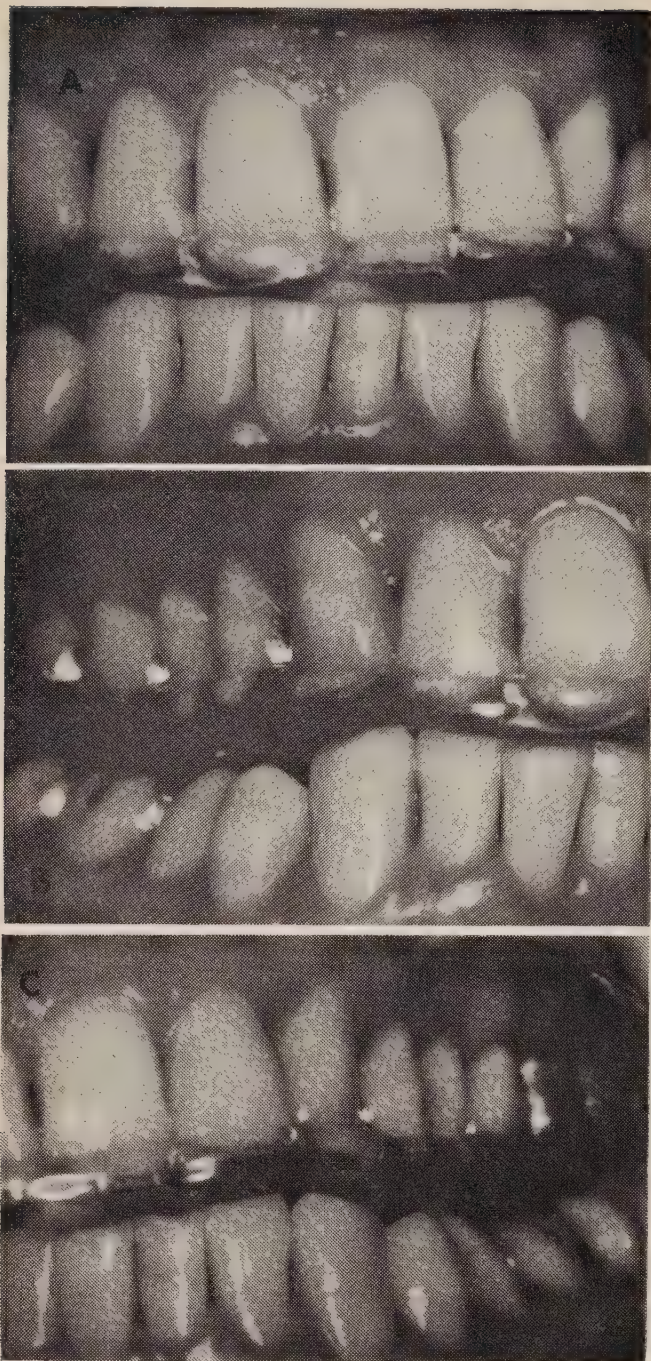


FIGURE 3 A, a second example demonstrating a finished maxillary night guard in place. Note uniform tooth contact in centric occlusion. B and C, right and left view. Note the unusual thickness of acrylic resin posteriorly due to a deep overbite.

arches, some dentists prefer to make both a maxillary and mandibular splint in which a flat plane occlusal surface is used. In most instances, the maxillary arch is chosen to receive the splint.

Phase 2.—The dental cast which is to receive the splint is surveyed, the crest of contour on the teeth is marked (Figure 1A), and the undercut area is blocked off in wax (Figure 1B). This is then duplicated for a working model. A separating medium is applied to the occlusal surface of the working model. A sheet of pink

wax is heated, folded and moulded over the dental arch until the teeth are embedded in wax up to the crest of contour. The bulk of wax should be kept to a minimum making sure that the occlusal thickness does not obliterate the freeway space. The use of a warmed flat surface aids in the establishment of the correct plane of occlusion.

Phase 3.—The wax form may be placed in the mouth and, if indicated, corrections made. This gives an added opportunity to verify uniform contact between teeth in the opposing arch and the wax. The occlusal surface is relieved or added to in such a way that in centric occlusion all the opposing teeth strike the wax at the same time (Figure 2). Similarly, contact of all the opposing teeth should occur simultaneously as the jaw moves into lateral and protrusive excursions. Remaining scratches and sharp contours on the occlusal surface are smoothed and the wax pattern is replaced on the cast. This wax pattern on the cast is then processed in clear acrylic resin. During the final adjustment of the completed splint in the mouth, articulating paper may be used to verify uniform contact of opposing teeth with the new acrylic splint while in centric occlusion (Figure 3). As is usually the case, the acrylic resin may be spot ground when too thick. In rare instances, cold cure acrylic may be added if a void is detected between the tooth and splint. Upon final insertion, it is important that the splint be well retained. It should not move when the patient opens wide or when he brings the teeth into contact with it. Occasionally additional retention may be desired. One method of increasing retention and strength is to partially cover the hard palate with a thin layer of acrylic resin. This type of splint is easily rebased with quick curing acrylic resin if it becomes loose after prolonged wear or if a restoration is replaced.

The following examples illustrate the versatility of this type of splint in counteracting the destructive aspects of bruxism, in obtaining stabilization or retention of teeth, and in establishing function for teeth that are out of occlusion.

Bruxism.—Bruxism has been defined as “an inaudible gnashing or audible grind-

ing of teeth or cuspal interferences during unsuspected movements of the mandible.”⁸ An incidence of 5 per cent was reported for a selected population ranging in age from three to 36.⁹ Bruxism may cause severe destruction of the teeth and their supporting structures. Diagnosis depends upon a careful history and examination. Sometimes patients may recall the habit of clenching or grinding their teeth, particularly while under stress. A history of symptoms of temporomandibular joint disturbance, such as pain or soreness in the pre-auricular area noticeable upon awakening or tired muscles of the jaw, may indicate grinding during sleep. Also, pains may be associated with the teeth themselves. Nadler¹⁰ has classified the aetiology of bruxism into local, systemic, psychological, and occupational factors. A history of recent restorative dentistry, gastro-intestinal disturbances, emotional tension and athletic or stressful occupations may all suggest the possibility of bruxism.^{11,12} Severe bruxism is symptomatic of an emotional reactive disturbance and may indicate the need for psychiatric consultation.¹³ A removable splint is indicated if either tooth mobility and/or attrition are excessive. The patient will usually retain his grinding habit but harmful

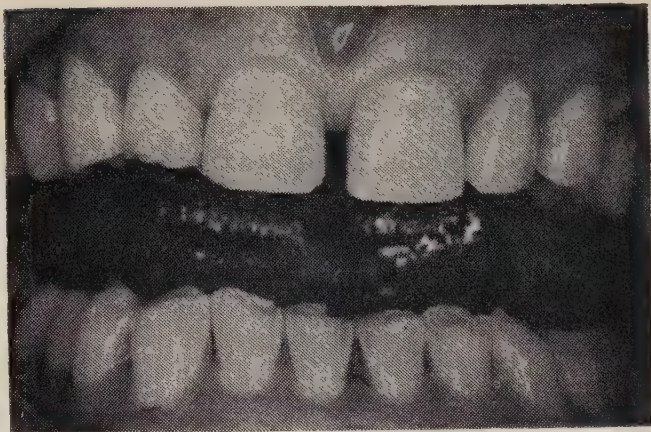
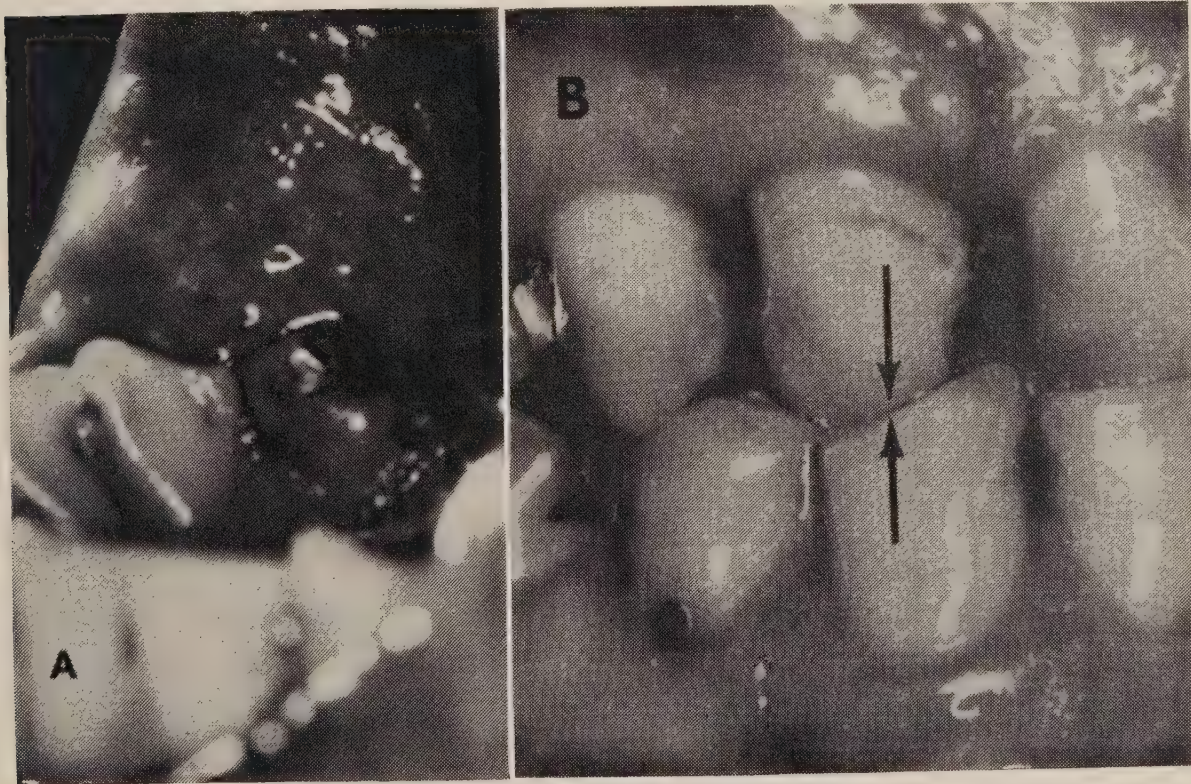


FIGURE 4 The broad facets on the mandibular incisors are associated with severe chipping of the incisal edge. These teeth were sensitive to hot and cold stimuli.

forces to individual teeth will be dissipated upon use of the removable splint.

Aside from loss of tooth structure, rapid attrition may endanger the viability of the pulp (Figure 4). Teeth subjected to occlusal trauma may be simultaneously associated with periodontitis, and further periodontic destruction may occur. Experimental occlusal trauma is associated with periodontic pathology.¹⁴ Signs of these events may be disclosed on examination. Upon inspection of the facial musculature in patients with bruxism, a heavy

FIGURE 5 A, a facet on the labial incisal surface of the lower right cuspid. B, apposition of an opposing tooth surface with this facet in right working movement of the mandible.



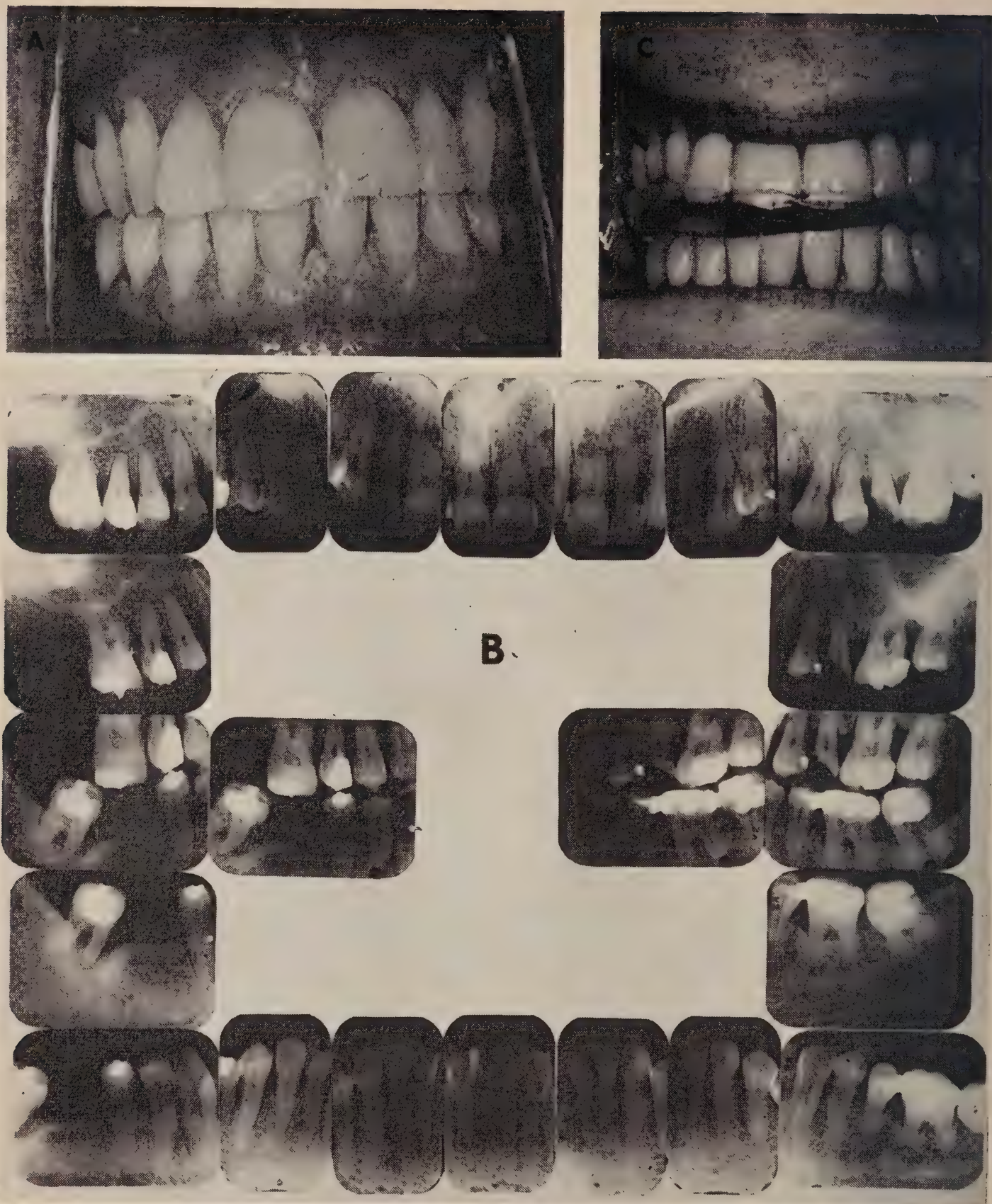


FIGURE 6 A, centric occlusion demonstrating an optimum appearance of the anterior teeth. Some recession is evident. B, radiographs illustrating small tapering roots and loss supporting of bone. C, night guard in place.

well developed set of masseter muscles may be evident. The teeth that are related to grinding actions usually exhibit marked wear patterns. Flat glass-like planes or facets (Figure 5A) are evident on the inclined planes of the teeth when opposing

teeth are brought into apposition and the patient's jaw moves into the various excursive positions (Figure 5B). During examination, palpation of the muscles of mastication may substantiate the appearance of enlargement. Most importantly,

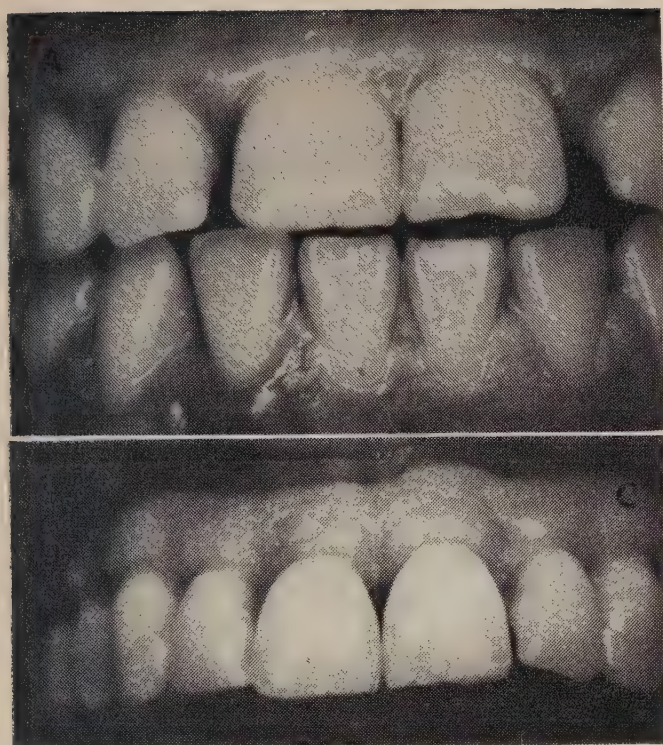
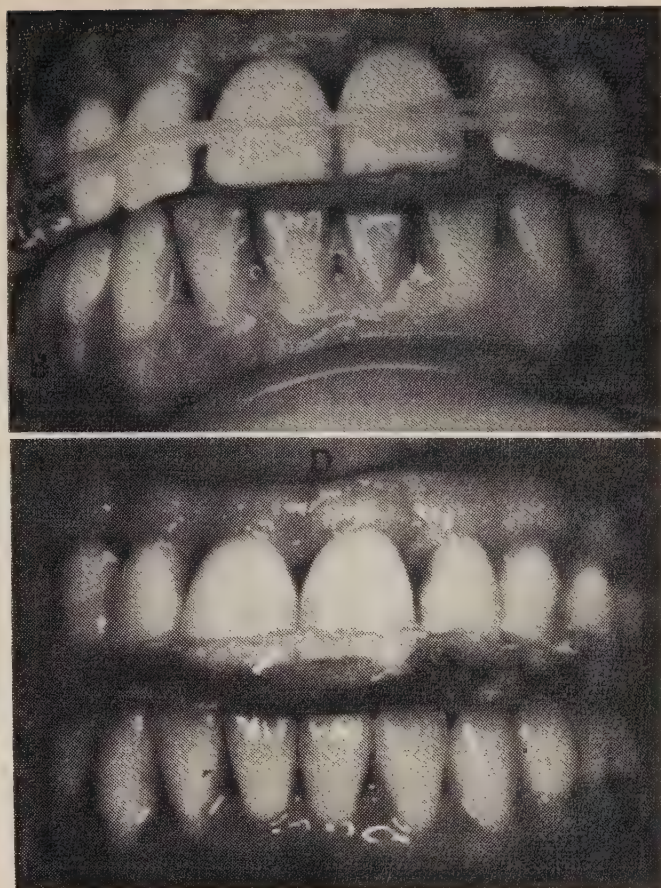


FIGURE 7 A, spacing between teeth present at the start of treatment. B, orthodontic bands have been welded together and cemented on the maxillary bicuspid. An elastic band which crosses the labial surface of the anterior teeth is attached to buccal buttons of the first bicuspid. This was done after periodontic surgery. C, appearance following orthodontic therapy. D, night guard placed on the maxillary teeth.



measurement of tooth mobility could reveal marked looseness of the teeth associated with broad facets. Tooth mobility is usually measured by attempting to move the tooth between the handles of two instruments placed on the buccal and lingual surfaces of the clinical crown. Radiographic examination may indicate a widening of the periodontic membrane space associated with the teeth on which increased forces are placed. Generalized bone loss associated with periodontic disease and marked vertical bone loss are best depicted radiographically in the bite-wing x-ray.¹⁵⁻¹⁷ A critical portion of the examination involves the recognition of any discrepancies of the occlusion. Ramfjord¹⁸ has stated that the most common occlusal factor in bruxism is a discrepancy between centric relation and centric occlusion. Balancing side contacts should not be overlooked. Occlusal discrepancies such as these should be corrected before an acrylic splint is constructed. The use of the acrylic splint is illustrated in two patients who were known to suffer from bruxism and whose maxillary teeth were

excessively mobile (Figures 2 and 3). Employment of the removable splint in patients with bruxism is probably the most frequent indication for its use provided damage to the teeth or their supporting structures has been great. Although grinding and gnashing may continue, trauma to individual teeth is minimized.

Stabilization.—There are occasions when some form of splinting of the teeth is needed because of a lack of root support associated with advanced periodontitis. The available evidence points to a decrease in tooth mobility following the use of an acrylic splint by patients with bruxism.¹⁹ Presumably, a permanent buttressing of teeth would result in even greater decrease in mobility; however, a full permanent splint is not feasible under certain circumstances. The use of an acrylic splint is illustrated in a patient with bruxism and periodontitis complicated by an unusually small clinical crown to root ratio (Figures 6A, B). There was no history of orthodontic therapy or severe viral infections as a child. Nor was there any evidence of a familial trait in relation to the underdeveloped roots. Anterior marginal gingivitis and gingival re-

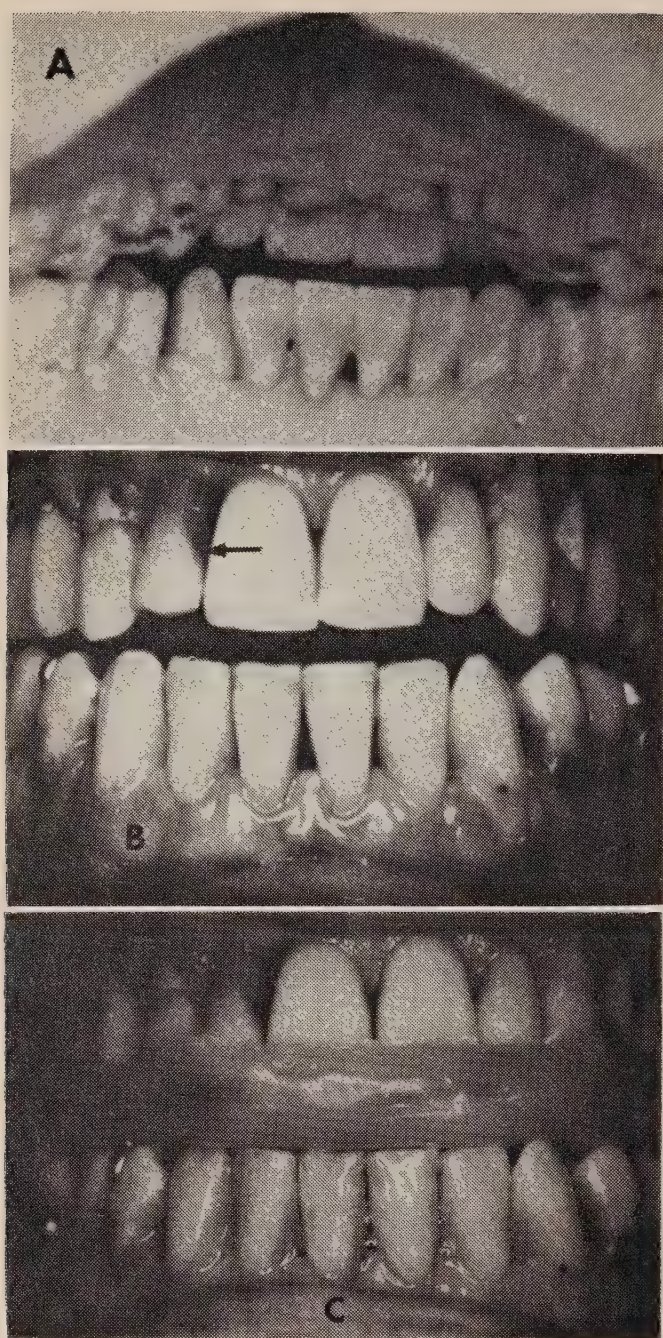


FIGURE 8 A, maxillary and mandibular cast in centric occlusion demonstrating the open bite. B, the degree of extrusion of the maxillary right lateral incisor is evidenced by the position of the cemento-enamel junction. Some reshaping and shortening of the right upper lateral incisor has been completed. C, wax pattern of the night guard in place.

cession were present. Crevice depths did not exceed 3 mm. Pocket formation with furcation involvement was evident posteriorly in the maxilla. All posterior teeth had 2+ mobility while anterior teeth were slightly looser. The mandibular teeth were less mobile, being 1+ and 2+ in the posterior and anterior segments respectively. The patient admitted to clenching her teeth and facets were clinically apparent. A slight centric premature con-

tact was detected and eliminated. The soft tissue appeared healthy after root curettage. However, after some weeks the teeth were still quite mobile. As a means of stabilization, an acrylic splint was constructed and the patient, a housewife, was instructed to wear it as often as possible (Figure 6C). The clenching habit persisted but no increase in mobility was noted over a two year period following the insertion of the splint.

Another situation benefitting from the splinting action of an acrylic splint occurs following minor tooth movement when retention is necessary. For example, the following case demonstrates the treatment of maxillary anterior teeth in labial version. There was an associated tongue thrust habit and moderate periodontitis. An acrylic splint was constructed (Figure 7) following occlusal adjustment, periodontic surgery and minor tooth movement. Worn most of the day and night, the splint helped to retain the teeth in their new position for three years. Mobility of the maxillary anterior teeth decreased from 3+ to 1+ measurement.

Establishment of Function.—One objective of the splint is to distribute the stress of occlusion over the remaining teeth. Another purpose is to bring occlusal forces upon a tooth that has no antagonist. Lack of functional stimulation to the periodontic tissues results in disuse atrophy. This state may be described histologically as a thinning and reduction in the number of periodontic fibres with disruption of the fibre bundle arrangement, thickening of cementum and reduction in the number and thickness of the bone trabeculae.²⁰ This can occur when an unopposed tooth is used as a distal abutment for a fixed bridge. By first utilizing an acrylic splint, the transition from minimal to moderate occlusal forces permits adaptation of the periodontium. During this time the response of the tooth may be observed. Later, the fixed prosthetic restoration may be safely used to restore a tooth surrounded by a properly adapted periodontium.

The following example illustrates a situation analogous to nonfunction. In a 50 year old patient with an open bite, the maxillary right lateral incisor had ex-

truded slightly and the patient was concerned about her appearance (Figure 8A). The mobility was 2+, but no pockets were present. After occlusal adjustment and reshaping of the clinical crown (Figure 8B), a splint was made to be worn as much as practical (Figure 8C). By establishing function with the splint, the lateral incisor became less mobile and did not extrude farther.

SUMMARY

The use of a removable acrylic splint in general practice may aid in the treatment of various dental problems. This relatively simple and inexpensive device affords a method of distributing nonfunctional forces throughout the entire dental arch. Thus, individual teeth are not overloaded and subjected to occlusal trauma. This type of splint may be used as an aid in cases of bruxism, excessive tooth mobility, minor tooth movement, and in allowing a partial return to function of teeth with no functioning antagonists.

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Providing a natural appearance for edentulous patients of long standing

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Four factors — impressions, jaw relations, contour of the denture base, and tooth selection — influence the aesthetic qualities of complete dentures. Denture borders should be determined by the functional position of the labial and buccal vestibular sulcus when the final impressions are made. Accurate registration of jaw relations is essential for dentures that combine comfort with a pleasing facial appearance. The contour of the denture base and the position of the anterior teeth must provide adequate support to the facial musculature. Phonetic requirements determine the vertical position of the teeth. A formula based on bizygomatic width of the face may be used to determine labiolingual width of the central incisors. The teeth should have sufficient bulk; otherwise they will look artificial and transparent. By using teeth of varying shades the dentist can avoid the stereotyped uniformity characteristic of many complete dentures. Natural tooth alignment may be simulated by setting teeth with inclinations and rotations to which the eye is accustomed. It is better to shape artificial teeth to suit the age of the patient than simply to select teeth according to the outline of the patient's face. Hand-moulded acrylic teeth which reproduce the characteristics of natural teeth of middle aged persons are generally more conducive to achieving a pleasing appearance.

■

Les impressions, la prise d'articulation, le contour des pièces et le choix des dents sont quatre facteurs dont dépend l'esthétique des prothèses complètes. Les bords de la prothèse devraient être déterminés par la position fonctionnelle du fond du repli muqueux au moment des impressions finales. L'enregistrement exact de

l'articulation est essentiel pour obtenir des prothèses qui assurent le confort et l'esthétique faciale du patient. Le contour de la base de la prothèse et la position des dents antérieures doivent fournir un soutien suffisant à la musculature faciale. Les besoins phonétiques déterminent la position verticale des dents. La largeur labio-linguale des incisives centrales peut se calculer d'après une formule basée sur la largeur bizygomatique du visage. Les dents devraient avoir assez de corps; sinon, elles paraîtront artificielles et transparentes. Variant la teinte des dents, le dentiste peut éviter l'uniformité qui caractérise tant de prothèses complètes. Divers degrés d'inclinaison et de rotation auxquels l'oeil est habitué permettent d'imiter l'alignement naturel des dents. Il vaut mieux adapter les dents artificielles à l'âge du patient que de les choisir simplement d'après la physionomie de celui-ci. Grâce aux dents acryliques moulées à la main, qui reproduisent les caractéristiques naturelles chez les personnes d'âge moyen, on obtient en général une meilleure esthétique faciale.

Complete denture prosthodontics may well be considered as a non-exacting science. Rather, it is a science of probabilities—for if the dentist carefully observes certain accepted mechanical rules of convention in denture construction, it is probable that the patient will be able to accommodate to the prosthesis.

These comfortable rules, however, do not apply to the artistic side of our clinical problems with edentulous patients. Any complete denture practice soon teaches one that human beings have complex motives and unpredictable aspira-

tions. People differ vastly in their ability to appreciate and accept complete dentures constructed for their needs.

For example, unsightly dentures predominate and are more evident than those which copy nature. That is why some patients tend to accept them as a standard. It is equally disheartening for the dentist when a patient overwhelmingly approves of a denture and then lacks the confidence to defend his acceptance before a critical relative or friend. This illustrates a basic principle: we must know the patient's mental attitude before we can serve his dental needs.

If realism is the goal in providing a natural appearing substitute for the lost dentition, it must be pursued with deliberate intent and with a definite plan in mind. Only the dentist can do this. No laboratory technician, regardless of his talents and experience, can anticipate and fulfil the individual patient's requirements of appearance with the same degree of fidelity which the dentist is able to exercise.¹ Conditions which are normal for each individual must be recognized, respected and maintained. Considerations of appearance play a part in each dental appointment, and the patient must be made aware of this fact.

IMPRESSIONS

Extended thickness of the labial borders of a denture gives the illusion of tenseness and confers excessive fullness to the lips. This is especially detrimental to normal facial expression, producing an unnatural contour between the nose and the lip. Any abnormal fullness of the upper lip, viewed in profile view, is unmistakably characterized as the 'denture look.' Denture borders, as they affect facial appearance, are best determined by recording the functional position of the labial and buccal vestibular sulcus when the final impressions are made.

JAW RELATIONS

The attempt to gain pleasing facial proportions often results in an excessive vertical dimension of occlusion and last-

ing discomfort for the patient. The converse—an insufficient vertical dimension of occlusion—adds years to the facial appearance and causes needless embarrassment. An intelligent compromise is indicated.

Errors in recording centric relation result in an occlusion which becomes another lingering source of aggravation. Although the dentures may be tolerated for short periods, they produce an uncertain, anxious facial appearance as the mandible constantly searches for some position that is free from stress.

CONTOURING THE DENTURE BASE

Natural contouring of the denture base is most important. The technique advocated by Pound² is excellent. This procedure contributes to the appearance of the dentures; it also provides an adequate supporting wall that allows the muscles of expression and soft tissues of the face to function normally. To achieve these ends, it is helpful to copy a cast of natural teeth having appropriate investing gingival tissues.

TEETH

Artificial teeth must be selected and arranged so as to achieve a natural appearance. The contribution of individual anterior teeth to realism of the dental composition is self-evident. Yet, far too many dentures with excellent retention and balanced occlusion have unsatisfactory teeth. In consequence, the discord between face and denture draws immediate attention to their artificiality.

Most dentists and patients are excessively concerned with selection of tooth moulds and shades. Actually, these are of minor significance in the overall composition. There is no system of tooth selection which guarantees perfection. The use of specific brands of anterior teeth does not necessarily assure an aesthetic result. Rigid adherence to any given standard detracts from the individuality of the denture and reduces prosthodontic service to a level of mass production.³ Five factors, however, do require consideration. Listed in the order of their importance,

they are: position, dimension, shade, alignment, and form.

Position. — Regardless of how carefully the maxillary wax rim is oriented in space and contoured, it may be necessary to deviate from the ideal form when the dentist positions the teeth at the chair-side. The anterior teeth must be placed so as to support the facial musculature. They must also be in harmony with the face in repose and while speaking, laughing, and smiling. In short, they must be attractive and give the illusion of 'belonging' when viewed by the dentist and the patient. The dentist must accordingly retain a mental image of the position of the patient's natural anterior teeth so that aesthetic as well as functional harmony may be achieved. The anteroposterior position and the vertical relationship with the residual ridge must be determined for each anterior tooth. As each tooth is placed, it must be checked for appearance and function and shifted forward, backward or downward until a harmonious position is evident. Further testing will indicate whether additional changes are necessary. In nature, the two maxillary central incisors are located anterior to the incisive papilla on the hard palate. We must duplicate this with artificial teeth. Some have suggested there is a consistent measurement between the centre of this papilla and the labial surface of the central incisors.⁴ This is fallacious because it tends to standardize a valuable control. If there is a correlation between this factor and arch form, or if it consistently varies from female to male, it has not been evident to me. It is simpler to state that the central incisor teeth are always positioned to either side of, and somewhat in front of, the incisive papilla.

Adequate support for the upper lip is equally significant. Normal lip support in the edentulous patient occurs only when the tissues behind the vermilion border are sustained by the teeth and base material to produce a pleasing outward (profile) curve of the lip. Normal lip support is essential, not only for appearance, but for preserving the health and tone of the muscles of facial expression.

The vertical position of upper anterior

teeth is best determined by the requirements of phonetics. Utilizing the upper lip in repose as a guide to the level of the incisal edge is merely a preliminary step. As the patient pronounces F and V sounds, the incisal edges of the upper teeth should contact the vermilion border of the lower lip at the greatest height of its convexity.⁵ The teeth contact the dorsal side of the tip of the tongue in TH sounds, but without an obvious escape of air during pronunciation.

The patient's old dentures always provide a clue as to what or what not to do. Photographs also aid in determining tooth position. Moreover, they show the patient that his dentist is genuinely concerned in the appearance of his dentures.

Dimension. — There is a harmonious relationship between the size of teeth and faces. Berry⁶ originally observed that the upper central incisor was approximately one-sixteenth the width of the face. House⁷ subsequently supported this finding and offered a system of individual tooth selection based upon average tooth sizes in patients with pleasing natural dentitions. According to this method the dentist measures the bizygomatic width of the face, expresses the distance in millimetres, and divides by 16. This provides the approximate width of each maxillary central incisor. Lateral incisors and cuspids are then chosen to harmonize with the central incisors.

This method of selecting approximate tooth size, though not infallible, is fundamentally more sound than the practice of measuring casts along the changing residual ridge crest. To subscribe to this latter method is to fill wide open spaces rather than edentulous faces. The dentist must know about faces if he is to choose harmonious teeth.

Few dentists appreciate the importance of the labiolingual thickness of artificial teeth. Both porcelain and acrylic resin teeth require bulk in order to achieve natural light reflection, realistic colour depth, harmonious pigmentation, and the quality of vitality which characterizes natural teeth. If we use teeth that are too thin, they fail to reproduce the natural appearance since the transparent qualities contrast harshly with the patient's face.

Shades. — Most complete dentures fail to simulate the natural dentition because the artificial incisors, cuspids, bicuspid and molars are too perfectly colour-matched. The resulting monotonous wall of porcelain or resin advertises falseness each time the upper lip allows the teeth to be seen.

In contrast, natural teeth possess a blend of several shades. Fillings, stains from tobacco, coffee, tea, and varying degrees of trauma all leave their mark to give each natural tooth a distinctive colour and texture. We must learn to perceive this delicate mingling of shades within natural teeth as well as the harmonious variations of colour from tooth to tooth.

The dentist must consider the age, the individual complexion pattern, and the attitude of the patient when choosing tooth shades. Shade selection is not an exacting procedure if we remember to choose a variety of shades of teeth so as to duplicate natural conditions.

Alignment. — The alignment of natural teeth is influenced by two principal factors. First, the growth and development of the head and face govern how, when, and where each tooth will enter the dental arch. Perfect alignment is exceedingly rare, even in young adults, since the controlling agents are too complex and are held in too delicate a balance. Secondly, the normal passage of time leaves its mark on the natural dentition and the positional relationship of the teeth. For example, at age 30, the average person has lost eight teeth. Tooth loss without replacement always permits drifting of the remaining teeth—a manifestation often noted in persons of middle age.

The conventional tooth arrangements seen in many denture wearers draw attention to their obvious falseness. There is utter perfection in the arrangement of teeth set against a background of normal age change of the face. Such stereotyped tooth arrangements can always be detected because they are contrary to the laws of nature.

Satisfactory tooth alignment cannot be achieved unless teeth are set with typical inclinations and rotations familiar to the eye. Casts of natural teeth should be used

for guidance. Variations may be introduced when irregularities appear to be too harsh in the opinion of the patient. The most typical irregularities involve rotational positions of the lateral incisors.

Anterior compositions devised by this plan are pleasing in appearance, defy detection, and harmonize with individual facial features.

Form. — Tooth manufacturers overemphasize the significance of outline form. It is more important to grind and reshape artificial teeth before positioning them on the denture base than to select teeth to follow square, ovoid, or tapering face or arch forms. By grinding and reshaping them, the dentist characterizes the teeth to match the age pattern of the patient.

Hand-moulded acrylic resin teeth are actual reproductions of the natural teeth of middle-aged individuals. They combine natural colour and staining qualities with the contour changes which occur in natural teeth with increasing age. Such teeth best fulfil the demands of tooth form. After all, the unblemished tooth outline of a teen-ager could hardly belong to an individual in the forties.

CONCLUSION

Natural appearance for the edentulous patient can be one of the most rewarding objectives in complete denture construction. The practical guiding principles I have suggested are designed to place this phase of prosthodontics on a sounder footing.

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Veterans Administration Centre

Council on Research

Fluoride supplements for prevention of dental caries

Conseil de la recherche

Compléments de fluor pour la prévention de la carie dentaire

This statement updates a previous statement by the Council on this subject published in the April 1964 issue of the Journal.

Cette déclaration met à jour la déclaration préalable faite par le Conseil à ce sujet et publiée dans le numéro d'avril 1964 du Journal.

INTRODUCTION

The most effective and least expensive method of caries prophylaxis for the general population is adjustment of the fluoride content in community water supplies to a level of one part per million. Some upward adjustment of this level may be advisable in colder areas.¹

In areas where communal water supplies do not exist, or where fluoridation is not yet in operation, and where the fluoride concentration in the drinking water is less than 0.7 ppm, alternative methods of fluoride administration should be considered in order to extend the benefits of fluorides to such areas. It should be emphasized however, that, from a public health standpoint, home administration of fluoride is not a dependable substitute for communal fluoridation of drinking water, since to be effective the former requires an extensive period of exacting and intelligent cooperation in the individual household. There is at present sufficient information regarding

AVANT-PROPOS

La méthode la plus efficace et la moins coûteuse pour prévenir la carie au niveau du public consiste à régulariser la teneur en fluor de l'eau de consommation de façon à ce qu'elle en contienne une partie par million. Dans certaines régions plus froides, la proportion optimum peut dépasser légèrement cette proportion.¹

Là où il n'y a pas d'aqueduc, de même que dans les régions qui ne bénéficient pas encore de la fluoration et où la teneur de l'eau en fluor est d'une concentration inférieure à 0.7 ppm, il faut songer à d'autres méthodes pour que le public puisse bénéficier des avantages du fluor. Soulignons cependant qu'au point de vue santé publique, l'utilisation du fluor à domicile ne constitue pas une mesure qui remplace avantageusement la fluoration de l'eau des aqueducs. Pour être efficace, l'utilisation du fluor à domicile demande que l'on calcule avec précision les doses, ce qui nécessite la collaboration intelligente de tous les membres de la famille.

TABLE 1 Suggested prescription for fluoride.*2

- (a) Stock fluoride solution (1.0 mg. F⁻ per ml.)
℞ sodium fluoride 0.11 Gm.
water to 50 ml.
Supply with dropper graduated for 0.25 ml. and 0.50 ml.
Sig.: Keep out of reach of children. Do not exceed recommended dosage.
- (b) Fluoride tablets (0.25 mg. F⁻ per tablet)
℞ sodium fluoride 0.55 mg.
Supply: 200 tablets
Sig.: Keep out of reach of children. Do not exceed recommended dosage.
[For convenience, single-scored tablets, containing 2.2 mg. NaF (1.0 mg. F⁻), may be prescribed for older children.]

*Proprietary preparations of sodium or potassium fluoride, in solution or in tablet form, which permit simple and accurate modulation of dosage according to age and natural fluoride content of water as indicated in Table 2 may be confidently used.

fluoride concentrates and caries prevention to conclude that such supplements, if properly used, will reduce the incidence of caries in children.² It is not yet possible to state how the degree of protection from home administration compares with regular consumption of communally fluoridated drinking water.

SPECIFIC TECHNIQUES OF
FLUORIDE SUPPLEMENTATION

(a) *Use of Home Fluoridated Water.* — The procedure which most nearly duplicates communal fluoridation in principle is the use in the home of water which has been adjusted to contain 1 ppm of fluoride. Practical details for the preparation of such drinking water in the home are given in Tables 1 and 2. This same concentration could also be provided by automatic metering devices attached to a domestic water system. If this water is used for all drinking and cooking purposes the method would duplicate communal fluoridation, and as such would be expected to yield similar results. This is the method of choice for administration of fluoride to infants since water intake is the regulator of the amount of fluoride ingested. Practical considerations may

TABLEAU 1 Modèle d'ordonnance pour le fluor.*2

- (a) Solution de fluor préparée à l'avance (1.0 mg. F⁻ par ml.)
℞ fluorure de sodium 0.11 Gm.
eau jusqu'à 50 ml.
Remettre avec compte-gouttes gradué pour 0.25 ml. et 0.50 ml.
Sig.: Tenir hors de la portée des enfants. Ne pas dépasser la dose.
- (b) Comprimés de fluor (0.25 mg. F⁻ par comprimé)
℞ fluorure de sodium 0.55 mg.
Remettre: 200 comprimés
Sig.: Tenir hors de la portée des enfants. Ne pas dépasser la dose.
[On peut prescrire pour des enfants plus âgés des comprimés contenant 2.2 mg. NaF (1.0 mg. F⁻).]

*On peut se servir sans danger de produits commerciaux de fluorure de sodium ou de potassium, en solution ou en comprimés, pour ajuster facilement et exactement la dose selon l'âge et selon la teneur de l'eau naturelle en fluor, tel qu'indiqué dans le Tableau 2.

Les données accumulées à date sont suffisantes pour que l'on puisse conclure que les compléments de fluor employés à bon escient peuvent réduire l'incidence de la carie chez les enfants.² On ne peut cependant pas encore comparer les résultats obtenus par l'utilisation de comprimés de fluor avec ceux de la consommation régulière de l'eau fluorée provenant d'un aqueduc.

TECHNIQUES D'EMPLOI DES COMPLÉMENTS
DE FLUOR

(a) *Consommation d'eau fluorée à domicile.* — La méthode qui ressemble le plus à la fluoration de l'eau des aqueducs consiste à utiliser à la maison de l'eau dont la teneur en fluor est portée à une partie par million. On trouve dans les tableaux 1 et 2 des conseils pratiques sur la façon de préparer cette eau. On peut aussi atteindre cette concentration grâce à certains appareils de distribution qui s'installent à même la plomberie de la maison. Cette façon de faire peut se comparer à la fluoration de l'eau des aqueducs, si l'on se sert de cette eau fluorée chaque fois que l'on boit ou que l'on fait cuire des aliments. On pourrait s'attendre à des résultats favorables et il s'agit là du moyen

necessitate use of alternative procedures described in (b) below.

(b) *Use of Fluoride Concentrates.* — For children who consume little water, or where water is normally drunk from several sources each day, as for children attending school, the practical technique for administering fluoride is as a supplement given daily dissolved in a small volume of water or other liquid.

The best estimate that can be made at present of a suitable total daily dosage of supplemental fluoride is based on the average computed fluoride intake of children of comparable ages living in fluoridated areas. The recommended dosage of supplemental fluoride according to age and quantity of fluoride already present in natural water supplies is shown in Table 3. The increases in the amount of fluoride from infancy through childhood to early adolescence correspond to the increase in intakes which occur in communally fluoridated areas as children grow older.

Examples of practical means of supplying these dosages are indicated in Tables 1 and 4. Some proprietary fluoride preparations can also be adapted to supply the dosages indicated.

There are no hazards when fluoride supplements are used by reliable families in the manner prescribed. To safeguard against accidental poisoning of small children, it is recommended that no more than 60 mg. of fluoride ion be dispensed

idéal pour donner du fluor au public, car en mesurant leur consommation d'eau, on règle aussi celle du fluor. Cependant, pour des raisons pratiques, on devra peut-être employer d'autres méthodes, telles que l'usage de préparations de fluor.

(b) *Usage de préparations de fluor.*—On peut, pour les enfants qui boivent peu ou qui boivent à différents endroits durant la journée, par exemple ceux qui vont à l'école, administrer du fluor tous les jours en le dissolvant dans un peu d'eau ou d'autre boisson. On calcule actuellement la quantité idéale de fluor que les enfants devraient consommer quotidiennement en se basant sur les moyennes de fluor consommées par les enfants de divers âges qui vivent dans des régions où l'eau est fluorée.

La quantité recommandée, selon l'âge et selon la teneur naturelle en fluor de l'eau de la région, se trouve indiquée au tableau 3. L'augmentation de la dose de fluor, de la plus tendre enfance jusqu'à l'adolescence, correspond à l'augmentation de la consommation qui se produit durant la même période chez les enfants qui vivent dans des régions où l'eau publique est fluorée. On trouve dans le tableau 1 et dans le tableau 4 des moyens pratiques de fournir les quantités souhaitables. On peut aussi employer des solutions de fluor commercial pour répondre aux besoins.

Les familles sérieuses peuvent sans danger utiliser ces compléments de fluor à condition de suivre avec soin les recom-

TABLE 2 • TABLEAU 2 Method of fluoride administration by household use of fluoridated water • Façon de donner du fluor à la maison avec de l'eau fluorée.²

Formulation: Stock fluoride solution (1.0 mg. F- per ml.) or fluoride tablets (0.25 mg. F- per tablet, crushed) are added to 1 quart of water in the quantities shown depending upon the natural fluoride ion content of the existing water supply. Préparation: Des solutions de fluor préparées à l'avance (1.0 mg. F- par ml.) ou des comprimés de fluor écrasés (0.25 mg. F- par comprimé) sont ajoutés à une pinte d'eau à la quantité indiquée selon la teneur en ions de fluor de l'eau naturelle de la région.

Prescription	Natural fluoride ion content of existing water Teneur en ions de fluor de l'eau naturelle			Ordonnance
	0-0.25 ppm	0.25-0.50 ppm	0.50-0.75 ppm	
Stock fluoride solution (1 mg. F-/ml.)	1.0 ml.	0.5 ml.	0.25 ml.	Solution d'eau fluorée à l'avance (1 mg. F-/ml.) Comprimés de fluorure de sodium (0.25 mg. F-/comp.)
Sodium fluoride tablet (0.25 mg. F-/tab.)	4 tablets comprimés	2 tablets comprimés	1 tablet comprimé	

Administration: To be used for all drinking purposes, preparation of juices and formulae, and for cooking. Posologie. A être utilisé comme boisson ordinaire, pour préparer des jus et des boissons et pour la cuisson des aliments.

TABLE 3 • TABLEAU 3 Recommended dosage of fluoride (mg. F⁻) according to age and natural fluoride content in water supplies • Posologie recommandée pour le fluor (mg. F⁻) selon l'âge et la teneur de l'eau naturelle en fluor.²

Age	Natural fluoride ion content in water, mg./litre (or ppm) Teneur en ions de fluor dans l'eau naturelle, mg./litre (ou ppm)				Age
	0-0.25	0.25-0.50	0.50-0.75	0.75+	
0-12 mos.	0.25	0	0	0	0-12 mois
12 mos.-4 yrs.	0.50	0.25	0	0	12 mois-4 ans
4-8 yrs.	0.75	0.50	0.25	0	4-8 ans
8-12 yrs.	1.00	0.75	0.50	0	8-12 ans

No fluoride recommended for pregnant women (see text).
Il n'est pas nécessaire que la femme enceinte prenne du fluor (voir texte).

at one time. This amount of fluoride is sufficient for two months use at a rate of one milligram of fluoride ion per day, and is well below the lethal dose. The latter is approximately two to five grams of fluoride ion for adults and corresponds to an estimated dose of 350 to 700 mg. of fluoride ion for a 10 kg. child. The supply of fluoride tablets or solution should be kept out of reach of children.

MODE OF ACTION OF FLUORIDE

For optimum benefits to the individual tooth the ingestion of fluoride must be commenced during the period of pre-eruptive maturation of the surface of enamel. For example, the first permanent

mandations. Pour réduire au minimum les dangers d'empoisonnement chez les tous jeunes enfants, il est préférable de ne jamais préparer plus de 60 mg. d'ions de fluor à la fois. Cette quantité de fluor est suffisante pour deux mois, à raison de 1 mg. d'ions de fluor par jour, ce qui est bien au-dessous de la dose fatale. Cette dose dangereuse se situe de 2 à 5 grammes d'ions de fluor pour les adultes, et de 350 à 700 mg. d'ions de fluor pour un enfant de 10 kg. Les solutions ou les comprimés de fluor devraient être gardés hors de la portée des enfants.

MODE D'ACTION DES FLUORURES

Pour que les dents en tirent le maxi-

TABLE 4 • TABLEAU 4 Method of fluoride administration by use of fluoride supplements • Façons de donner du fluor en utilisant des suppléments de fluor.²

Administration: Stock fluoride solution (1.0 mg. F⁻ per ml.) or fluoride tablets (0.25 mg. F⁻ per tablet) are administered according to the following schedule, once daily. Tablets should be crushed and dissolved in formula, water, milk or juice. The schedule makes allowance for age of child and natural fluoride ion content of existing drinking water supply.
Posologie: On fait prendre, une fois par jour, des solutions de fluor préparées à l'avance (1.0 mg. F⁻ par ml.) ou des comprimés de fluor (0.25 mg. F⁻ par comprimé) d'après le barème suivant. On écrase les comprimés et on les fait prendre dans de l'eau, du lait ou des jus. Le barème tient compte de l'âge de l'enfant et de la teneur en ions de fluor de l'eau naturelle.

Age of child	Natural fluoride ion content of existing water Teneur en ions de fluor de l'eau naturelle						Age de l'enfant
	0-0.25 ppm		0.25-0.75 ppm		0.50-0.75 ppm		
	Stock soln. ml.	Tablets Comprimés	Stock soln. ml.	Tablets Comprimés	Stock soln. ml.	Tablets Comprimés	
0-12 mos.	0.25	1	0	0	0	0	0-12 mois
12 mos.-4 yrs.	0.50	2	0.25	1	0	0	12 mois-4 ans
4-8 yrs.	0.75	3	0.50	2	0.25	1	4-8 ans
8-12 yrs.	1.00	4	0.75	3	0.50	2	8-12 ans

molar will receive optimum protection from fluorides even if the child does not commence ingestion of fluoridated water until three or four years of age, although development of the first molar crown is well advanced at that age. This phenomenon is explained on the basis of fluoride deposition on the surface of enamel, prior to eruption, in sufficient concentrations to reduce dental caries.

Since most of the enamel surface of the deciduous teeth is formed after birth, administration of fluoride to gravid women should not be necessary to obtain a significant caries prophylactic effect on the deciduous teeth of the offspring. It should be noted that there is no proved contraindication to fluoride administration during pregnancy; it is simply not necessary.

Fluoride administration should commence shortly after birth and continue until the second permanent molars have erupted at the age of 12 to 14 years. The third permanent molars will not benefit from this program. Since these teeth develop much later in life, and are often removed, a reasonable age at which to stop administration of supplemental fluoride is after eruption of the second permanent molars.

Topical applications of fluoride using stannous fluoride, sodium fluoride, or fluoride-phosphate solutions, may be advisable either in conjunction with, or after cessation of, systemic fluoride therapy in order to increase fluoride concentration on the enamel surface. The use of a dentifrice containing a satisfactory stabilized form of fluoride is also recommended both in childhood and during adult life in order to increase further the amount of fluoride which is deposited on the enamel surface.

MULTIPLE VITAMIN-FLUORIDE SUPPLEMENTS

Although some of the commercially available vitamin-fluoride combinations may satisfactorily answer the requirements in the individual cases, these products are considered to have a number of important drawbacks. The fixed formulation of the multiple preparations does not permit control over the dosage of individual constituents. Thus it is not feasible to adjust the supplemental fluoride

mum de profit, les fluorures devraient être données dès la période où l'émail commence à se former, c'est-à-dire, avant l'éruption. Ainsi, la première molaire permanente bénéficiera de l'emploi du fluor, même si l'enfant ne commence pas à boire de l'eau fluorée avant qu'il ait trois ou quatre ans, et cela en dépit du fait que la calcification de la couronne soit assez avancée à cet âge.

On explique ce phénomène par le fait qu'il suffit que le fluor se dépose en concentration suffisante sur la surface de l'émail avant l'éruption de la dent pour que celui-ci soit protégé contre la carie. La surface d'émail de la plupart des dents primaires se forme après la naissance. Il n'est donc pas nécessaire de prescrire du fluor aux femmes enceintes pour prévenir la carie dentaire chez leurs enfants. Toutefois, il n'y a pas d'inconvénient à prescrire du fluor durant la grossesse.

L'administration de fluor devrait commencer peu de temps après la naissance et se continuer jusqu'à ce que les deuxièmes molaires permanentes soient sorties, c'est-à-dire, entre 12 et 14 ans. Les troisièmes molaires permanentes ne bénéficient pas de cette attention. Ces dents se développent plus tard, et elles sont souvent extraites. L'époque où doit normalement arrêter l'absorption du fluor se situe donc après l'éruption des deuxièmes molaires permanentes.

L'application topique de fluor—fluorure d'étain, fluorure de sodium et fluorure-phosphate—est à conseiller, soit en même temps, soit après l'ingestion de fluorure, de façon à augmenter la concentration de fluor sur la surface d'émail des dents. L'emploi d'un dentifrice contenant une forme stable de fluor est recommandé, tant durant l'enfance qu'à l'âge adulte, encore pour accroître la quantité de fluor déposée sur l'émail.

MÉLANGE DE FLUOR ET DE VITAMINES

Certains produits commerciaux contiennent du fluor combiné à des vitamines; ces formules, tout en répondant aux exigences de certains individus, ont plusieurs inconvénients. Il est d'abord difficile, à cause de la combinaison de plu-

intake for the age of the patient, nor for concentrations of fluoride already present in the drinking water. Similarly it is not readily possible to modulate the amount of supplemental vitamins (e.g. vitamin D) in order to compensate for the variable and frequently excessive intakes obtained from commercially enriched foods. Since a considerable time must elapse before the deleterious effects of excessive or insufficient intake of fluoride or vitamin D will become manifest, misuse of the combined medication would not be readily apparent. Therefore at the present time the use of vitamin-fluoride preparations is not recommended until long-range studies establish their efficacy in clinical practice.

1. McPhail, C. W. B. and Zacherl, W. Personal communication, 1964.
2. Nikiforuk, G. and Fraser, D. L. Fluoride supplements for prophylaxis of dental caries. *J. Canad. Dent. Ass.* 30:67, 1964. (Also in *Amer. J. Dis. Child.* February 1964.

sieurs éléments, de contrôler le dosage de chacun d'eux. On ne peut ainsi fixer la quantité du complément de fluor nécessaire selon l'âge de l'individu, ni la concentration de fluor déjà présente dans l'eau de consommation. De même, avec ces produits, il est impossible de marier la dose de vitamines supplémentaires (par exemple, la vitamine D) avec la quantité qu'en contiennent déjà les aliments, souvent en excès. On ne peut se rendre compte qu'après une période de temps assez longue des effets désastreux d'une consommation trop considérable de vitamine D et de fluor. Un excès de cette combinaison ne manifeste pas de signe à brève échéance. C'est pourquoi, à l'heure actuelle, l'utilisation de produits vitamines-fluor n'est pas recommandée et cela, jusqu'à ce que des recherches de longue haleine aient prouvé leur efficacité dans le domaine clinique.

Rectification • L'un des articles sur l'actualité, p. 400 du numéro de juillet ("Le collège de Québec conseille de subventionner la fluoration"), donnait un renseignement erroné au sujet du mémoire du Collège des chirurgiens dentistes de la province de Québec à la Commission Castonguay du Gouvernement du Québec. Le CCDPQ a demandé "que soit établi au départ un programme de traitement pour tous les assistés sociaux (dont le nombre se monte à environ 340,000.) Cependant s'il s'avérait impossible pour le Gouvernement d'assumer cette charge à l'heure actuelle, nous recommanderions que l'on commence par traiter les enfants des assistés". Le collège a conseillé également comme deuxième étape du système d'assurance dentaire et à partir de la première année de sa mise en vigueur, l'inclusion de tous les enfants de trois à six ans. *Le CCDPQ n'a cependant pas envisagé l'extension de ces services à toute la population, comme le suggérait l'article du journal.*

Canada

Cours de dentisterie hospitalière à l'hôpital de Scarborough, les 12 et 13 octobre

L'hôpital général de Scarborough, à Scarborough, Ontario, offrira, à nouveau, un cours de deux jours sur la dentisterie hospitalière. Ce cours auquel l'inscription est limitée aura lieu les 12 et 13 octobre. Les droits d'inscription de \$65 couvrent les déjeuners et le dîner. Pour plus de détails, veuillez écrire au secrétaire, le Dr M. D. Charendoff, Scarborough, Hôpital général de Scarborough, 3050 Lawrence Avenue East, Scarborough, Ontario.

Chronique internationale

Californie: Tentative pour faire dépendre le renouvellement des licences de l'enseignement continu

Un projet de loi présenté récemment au parlement de la Californie demande que l'éducation continue soit une condition de renouvellement du certificat d'inscription des pharmaciens. Un éditorial, dans le numéro de juillet du journal de l'Association dentaire de la Californie du Sud, commentait cette initiative en ces termes: "De nombreux dentistes ne se tiennent pas à jour volontairement et ne suivent pas un programme de formation continue. Nous devrions considérer très sérieusement l'imposition d'exigences éducationnelles pour le renouvellement de la licence des dentistes.

Réunion de biologistes en Californie

L'American Institute of Oral Biology tiendra du 20 au 24 octobre sa 24ème réunion annuelle à l'hôtel Oasis, Palm Springs, Californie. Les conférenciers qui y prendront la parole sont:

B. N. Epker, DDS, Henry Ford Hospital, Détroit, Michigan, qui parlera de la rénovation de l'os et du développement de l'ostéoporose, des effets du fluor sur la rénovation de l'os, et de la possibilité d'employer le fluor dans le traitement de l'ostéoporose, ainsi que des effets biochimiques sur la structure osseuse;

G. F. J. Lehner, PhD, de l'Université de Californie, Los Angeles, dont le sujet sera les influences personnelles, interpersonnelles, et la réalisation de soi, ainsi que le développement professionnel et personnel;

Jean Mayer, PhD, professeur de nutrition à la School of Public Health, Harvard University, Boston, qui parlera de la faim, de la satiété, de la régulation de l'apport alimentaire, du rôle de l'exercice dans la santé et en particulier sur le système cardiovasculaire, ainsi que des erreurs du métabolisme et de leurs implications dans la nutrition;

Karl Meyer, MD, PhD, professeur de biochimie au College of Physicians and Surgeons de l'Université Columbia, New York, qui traitera des mucopolysaccharides et des mucoprotéines dans quelques maladies congénitales, des mucopolysaccharides et de la sénescence, ainsi que la polydispersité et l'hétérogénéité des mucopolysaccharides et des mucoprotéines;

R. E. Stallard, DDS, PhD, qui est professeur et président de la division de périodontie à la Faculté de chirurgie den-

taire de l'Université du Minnesota à Minneapolis. Le Dr Stallard parlera du développement et de la différenciation de la gencive et de l'attachement épithélial, de la microcirculation périodontique et du fluide de la crevasse gingivale, ainsi que de la maladie périodontique et de sa relation avec la pathologie pulpaire.

Les dentistes participant à cette réunion recevront les manuscrits afin de les étudier à l'avance. Des périodes de discussion et des forums permettront de dégager les applications pratiques des sujets traités.

Pour tout renseignement et formule d'inscription s'adresser à J. A. Ducasse, 240 E. Lake Avenue, Watsonville, Californie, E.-U.

Les périodontistes se réuniront à Washington du 25 au 28 octobre

Washington, DC, sera le site de la 53ème réunion annuelle de l'Académie américaine de Périodontologie, du 25 au 28 octobre 1967, à l'hôtel Mayflower. L'un des faits marquants de cette réunion sera l'exposé, le 25 octobre, de Jens Waerhaug, professeur et président du département de périodontologie à l'Université d'Oslo, en Norvège. Les membres de toutes les organisations dentaires reconnues sont invités. Pour de plus amples renseignements, veuillez vous mettre en rapport avec le Dr R. G. Kesel, 211 East Chicago Avenue, Chicago, Illinois, 60611, E.-U.

Les chefs de cliniques dentaires hospitalières se réuniront à Washington le 29 octobre

L'Association américaine des chefs de cliniques dentaires hospitalières tiendra une réunion d'un jour complet à l'hôtel America à Washington, DC, le 29 octobre. Parmi les conférenciers et les sujets qu'ils traiteront, citons:

Le Dr J. R. Cameron, "La dentisterie hospitalière, hier, aujourd'hui et demain";

Le Dr L. O. Bishop, "Le rôle futur de l'hôpital dans les nouvelles conceptions de la santé";

Le Dr Joseph Williamson, "Le soin intégral du patient à l'hôpital".

Prévue également, une discussion sur les programmes de formation dentaire dans les hôpitaux agréés, dirigée par le Dr Warren Ball, secrétaire adjoint du conseil de l'Association dentaire américaine sur l'éducation dentaire.

D'autres personnalités éminentes en dentisterie hospitalière parleront à la réunion, et parmi elles, le président, le Dr Jack Pfister, et le secrétaire du conseil des services hospitaliers de l'Association dentaire américaine le Dr J. E. Fauber.

Pour de plus amples renseignements, veuillez vous adresser au Dr I. E. Gruber, secrétaire de l'Association américaine des chefs de clinique dentaire des hôpitaux, 100 South Grand Avenue, Baldwin, New York 11510, E.-U.

Cours d'endodontie au Temple U les 26 et 27 octobre

Les dentistes canadiens ont été invités à se rendre à un cours télévisé sur le "Traitement endodontique des dents à racines simples et à racines multiples", à la Faculté dentaire de l'Université Temple, les 26 et 27 octobre. Ce cours, qui sera présenté par le Dr Léonard Parris, professeur d'endodontie, aura lieu immédiatement avant la réunion annuelle de l'Association dentaire américaine, à Washington.

Pour de plus amples renseignements et pour l'inscription, veuillez écrire au directeur des études post-graduées (Director of Postgraduate Studies), Faculté dentaire de l'Université Temple, 3223 North Broad Street, Philadelphie, Pennsylvanie 19140, E.-U.

Facultés dentaires canadiennes

Cours d'appoint à l'Université de Montréal

La Faculté de chirurgie dentaire de l'Université de Montréal vient de publier le programme de ses cours d'appoint pour l'année académique 1967-1968. Il s'agit de 12 cours différents qui s'adressent à l'omnipraticien. D'une durée allant de un

à trois jours, ces cours traitent de tous les aspects principaux de la pratique dentaire moderne: périodontie, endodontie, procédures hospitalières, dentisterie opératoire, thérapeutique, prothèses fixe et amovible, anatomie, cancer et prévention.

Pour de plus amples renseignements, communiquer avec la Commission de l'enseignement post-scolaire et gradué, Faculté de chirurgie dentaire, Université de Montréal, Case postale 6128, Montréal 3.

Organismes dentaires

Le Dr David vient d'être nommé président du groupe endodontique de Montréal

La Société d'endodontie de Montréal vient de prêter hommage au Dr I. L. Feincheider, qui terminait son terme comme président du groupe pour 1966-67. Le Dr R. J. David lui succède.

La société a tenu quatre réunions cliniques au cours de l'année dernière. Les auteurs des essais qui ont été présentés et leurs sujets étaient les suivants: le Dr Herbert Schilder de Boston, "Relation entre l'endodontie et la périodontie" à la réunion qui s'est tenue conjointement avec l'Académie canadienne des Sciences dentaires, le 1er octobre 1968; le Dr Martin Brannstrom de Stockholm, "Réaction de la pulpe aux caries", le 2 mars 1967; et le Dr Yury Kuttler de Nuevo Leon, Mexique, "Le statut actuel et les différentes conceptions de l'endodontie", le 17 avril. La réunion finale était consacrée à une discussion de cas.

Un colloque sur le sinus du maxillaire et les racines des dents maxillaires fait partie du programme projeté pour 1967-68. Des renseignements supplémentaires peuvent être obtenus auprès du secrétaire de la société, le Dr J. A. Guay, 132 rue Radisson, Trois-Rivières, P. Québec.

Fluoration

L'Illinois passe une loi sur la fluoration

La Chambre des Représentants de l'Illinois a approuvé, le 21 juin, un projet de

loi sur la fluoration obligatoire. Le Sénat de cet état l'avait approuvé précédemment, en avril. L'Illinois devient ainsi le troisième état des Etats-Unis à adopter une loi sur la fluoration obligatoire.

Les infirmières canadiennes appuient la fluoration

Helen K. Mussallem, directrice de l'Association des infirmières canadiennes, a annoncé que le Conseil d'administration de l'AIC avait pris position en faveur de la fluoration. La décision a été prise le 15 mars après examen de rapports et d'opinions autorisées.

Amis et ennemis s'allient

Cette nouvelle intrigante est extraite du numéro d'avril du Washington State Dental Association's *WSDA News Letter*: "Les partisans et les adversaires de la de la fluoration se sont alliés à Richland pour former le comité conjoint d'hygiène dentaire des comtés de Benton et de Franklin."

Economie

L'indifférence est considérée comme l'un des obstacles principaux à la santé dentaire de la nation

La simple indifférence, plutôt que le manque de dentistes, est l'obstacle réel qui s'oppose à l'amélioration de la santé dentaire des Canadiens, d'après le secrétaire de l'ADC, le Dr W. G. McIntosh. Dans un discours prononcé à Montréal le 12 juin, à l'Association médicale canadienne, le Dr McIntosh a déclaré que si la demande actuelle de soins dentaires demeurerait constante, dans les dix années à venir, la profession pourrait y satisfaire largement, mais ajouta-t-il, la demande augmentera. A quelle cadence, nous ne le savons pas, parce que la population, le revenu per capita, le niveau d'éduca-

tion et le souci général d'une bonne santé dentaire, vont aller croissant.

"Il faut que nous augmentions la demande de soins dentaires," a expliqué le Dr McIntosh, "tout en en diminuant le besoin". C'est pourquoi la profession est en train d'établir un plan de santé dentaire pour les enfants, qui leur donnera les avantages d'un programme organisé, quant à l'éducation pour la santé dentaire, la prévention et les soins, quelle que soit la région qu'ils habitent ou le revenu de leurs parents. C'est aussi pourquoi la profession a réclamé la fluoration obligatoire, avec participation fédérale aux coûts d'équipement et d'installation; une étude des raisons qui motivent le peu de demandes de soins dentaires, afin de déterminer l'ordre de priorité dans l'établissement de programmes publics; un plus grand nombre de programmes de diagnostic et d'éducation de santé publique dentaire pour les enfants d'âge scolaire et préscolaire; une étude plus approfondie des plans dentaires prépayés, patronnés par la profession; les soins dentaires pour les personnes âgées impotentes ou les malades chroniques; des cliniques dentaires générales dans les hôpitaux pour les personnes non hospitalisées à revenu marginal et des services dentaires dans toutes les institutions pour les vieillards et les malades chroniques.

Le Dr McIntosh a observé avec optimisme que les dentistes ont augmenté plus rapidement que le reste de la population, dans les quatre dernières années; des innovations techniques récentes ont permis d'augmenter la productivité des dentistes de 30 pour cent; il y a plus de gens que jamais qui boivent de l'eau fluorée, qui utilisent actuellement des solutions fluorées et emploient des dentifrices contenant du fluor. On attend une nouvelle vague de dentistes et d'auxiliaires dentaires des Facultés dentaires du Canada, qui augmenteront le rendement combiné de 50 pour cent dans les dix prochaines années.

Le Dr McIntosh a ajouté que l'ADC continuera à intensifier son programme de recrutement. Les femmes, qui sont une source potentielle de dentistes relativement inexploitée, pourraient devenir l'objectif principal pour le recrutement des dentistes, a-t-il suggéré.

Echelle de salaire pour les médecins et dentistes des unités sanitaires

Les médecins et dentistes employés à temps complet aux unités sanitaires du Ministère de la Santé du Québec verront leur rémunération augmentée au moins jusqu'à \$13,500. C'est ce qu'a déclaré le ministre de la Santé, M. Jean-Paul Cloutier, lors d'une séance d'un comité chargé d'étudier les prévisions budgétaires de ce ministère.

Cette mesure a pour but d'attirer un plus grand nombre de médecins et de dentistes au service du gouvernement. M. Eric Kierans, député libéral de Notre-Dame-de-Grâce et ancien ministre de la Santé, a exprimé le vœu que les médecins et les dentistes reçoivent une rémunération qui soit de l'ordre de celle qu'ils auraient s'ils pratiquaient dans les grands centres.

L'Ile du Prince-Edouard essaie d'attirer des dentistes

L'Ile du Prince-Edouard offre de nouveaux avantages pour attirer plus de dentistes dans la Province. Des lois récentes ont mis des prêts à la disposition des étudiants et des dentistes, pour les inciter à s'établir dans les régions qui en ont besoin.

Les étudiants peuvent obtenir jusqu'à \$1,500 par année de cours dentaire, indépendamment de tout prêt obtenu aux termes du programme de prêt aux étudiants du Canada. Les dentistes diplômés, qui ont le droit de pratiquer dans l'Ile du Prince-Edouard, peuvent recevoir jusqu'à \$2,000 pour établir une clientèle et jusqu'à \$10,000 pour se procurer l'équipement nécessaire. Dans l'un et l'autre cas, le bénéficiaire du prêt doit s'engager à pratiquer dans l'Ile du Prince-Edouard pendant une période minimum de trois ans.

Le plan dentaire du Saskatchewan ne sera adopté que sur demande populaire

Le gouvernement provincial ne proposera un programme de soins dentaires prépayés que si les électeurs en manifestent

le désir par plébiscite a déclaré au cours d'un banquet à Laflèche, Saskatchewan, le 15 juin, le Premier ministre, M. Ross Thatcher: "Quiconque prétend que des mesures de ce genre sont gratuites n'est simplement pas honnête avec nos électeurs."

Le Premier ministre a ajouté également que son gouvernement s'inquiète du manque de dentistes au Saskatchewan. L'Université du Saskatchewan a été priée d'accélérer la construction de l'école de dentisterie de Saskatoon de façon que les cours puissent commencer l'année prochaine plutôt qu'en 1969, comme prévu, a-t-il déclaré.

On souhaite avoir des corporations de services dentaires dans tous les états américains d'ici 1970

L'Association nationale des programmes de services dentaires — une fédération nationale des corporations de services dentaires aux Etats-Unis, sous l'égide de la profession — veut l'établissement d'un "cadre corporatif" pour la création de corporations de services dentaires, dans tous les états, d'ici 1970. Cet établissement donnerait une nouvelle impulsion aux plans prépayés dans les différents états. Ces programmes d'après le Dr K. J. Ryan, président de l'ANPSD, n'ont pas pris l'essor qu'ils auraient dû à cause de l'absence d'une corporation de services dentaires, dans de nombreux états.

Le Dr Ryan a préconisé également le développement d'agences administratives régionales pour servir les régions peu peuplées.

"Ce concept semble une solution raisonnable pour les petits états" a-t-il expliqué.

Hygiène publique

Il est proposé de faire bénéficier les 90,000 élèves des écoles de Toronto d'applications topiques de fluor

Il est possible que les quelque 90,000 élèves des écoles élémentaires de Toronto bénéficient de prophylaxies périodiques avec de la pâte prophylactique fluorée

suivies d'une application locale d'une solution acidulée de phosphate fluoré. Les responsables de l'hygiène publique étudient actuellement la proposition contenue dans le rapport annuel de 1966 du Service d'hygiène publique de la ville de Toronto. Si elle est adoptée, son exécution sera confiée à des équipes d'hygiénistes dentaires. "De cette façon", a dit le directeur du Service de l'hygiène dentaire municipal, le Dr H. S. Grey, "les enfants qui consomment également de l'eau fluorée, comme ceux de Toronto, peuvent voir leur carie dentaire diminuer de 75 pour cent."

Le Dr Grey a fait remarquer que des équipes dirigées par des hygiénistes dentaires s'occupent actuellement d'hygiène préventive dans sept des huit districts sanitaires de Toronto. Il envisage l'extension de ce service au huitième district et à deux municipalités, le village de Forest Hill et Swansea, qui ont été incorporées à la ville de Toronto, le 1er janvier de cette année.

Le Dr Grey a proposé également le remplacement progressif des dentistes par des hygiénistes dentaires dans les huit équipes du service. Ceci libérerait un certain nombre de dentistes pour le programme clinique du service. En 1966, les équipes d'inspection dentaire de Toronto ont examiné 115,637 élèves des écoles primaires, secondaires et confessionnelles.

Nouvel index pour l'évaluation des malocclusions

L'Association américaine des orthodontistes a annoncé l'établissement "d'une définition et de critères pour l'évaluation des malocclusions."

La malocclusion et la déformité dento-faciale sont définies comme "des conditions qui constituent un hasard pour la santé buccale et qui sont au détriment du bien-être de l'enfant en affectant son esthétique dento-faciale, le fonctionnement de la mâchoire inférieure ou la façon de parler."

Le nouvel index et les critères établis permettent de mesurer la malocclusion qui peut être reproduite avec précision par des examinateurs formés dans ce but. Les renseignements ainsi obtenus sont

utiles à la profession dentaire en général et aux administrateurs des programmes de prépaiement dentaires et d'assurances.

L'Association américaine des orthodontistes a préparé également "Un guide pour l'évaluation de la malocclusion", qui fournit des normes et des coefficients pour mesurer la sévérité de la malocclusion sans se servir de mesures millimétriques. Les évaluations peuvent se faire à partir d'empreintes ou directement dans la bouche. L'évaluation est destinée à découvrir s'il y a malocclusion et à déterminer sa sévérité d'après les critères et les coefficients qui lui conviennent. Des points sont donnés pour une déviation dans une arcade, des déviations entre le haut et le bas et des déviations dento-faciales. Les coefficients sont basés sur des normes orthodontiques cliniques vérifiées d'après l'effet de la malocclusion sur la santé dentaire, la fonction et l'esthétique.

Recherche

Trois nouveaux centres de recherche dentaire viennent d'être établis aux Etats-Unis

Le service de la Santé publique des Etats-Unis a accordé aux Universités d'Alabama, du Michigan et de la Caroline du Nord des subsides d'un montant total de \$2,100,000 pour la première année, dans le cadre d'un programme de cinq ans pour l'établissement de nouveaux centres de recherche dentaire.

La plupart des programmes subventionnés ont porté traditionnellement sur des projets de recherches individuelles, alors que le nouveau programme encourage les institutions à réunir tous les éléments nécessaires pour une attaque concentrée et soutenue des problèmes dentaires complexes et massifs, qui ont longtemps résisté à une approche fragmentée.

A l'Université de la Caroline du Nord, le programme sera concentré initialement dans différents domaines généraux de la science concernant la santé orale. Il s'agit des mécanismes neuraux, du métabolisme

minéral et des mécanismes hémostatiques. Une recherche subséquente s'occupera des mécanismes de vocalisation, des matériaux biologiques, de la prothétique et de l'interaction tissu-microbe.

Parmi les problèmes qui seront étudiés à l'Université de l'Alabama, citons la minéralisation et la déminéralisation de la structure de la dent et des tissus de support, la formation et le métabolisme de la plaque dentaire et la biochimie des tissus conjonctifs, sains et malades. La recherche comprendra éventuellement des études de génétique et des matériaux biologiques. L'Université envisage d'entreprendre de la recherche clinique appliquée au cours de la deuxième année du nouveau programme.

A l'Université du Michigan, le programme concernera les départements d'anatomie, de biochimie, de génétique, de pathologie, de pharmacologie, de physiologie et de microbiologie, pour permettre une recherche interdisciplinaire coordonnée dans les sciences apparentées à la santé orale.

Le service de la Santé publique des Etats-Unis compte établir deux ou trois autres centres de recherche dentaire, dans un an ou deux.

Test de la gomme thérapeutique

En Colombie britannique, l'expert régional dentaire, le Dr A. S. Richardson de Cranbrook, commencera des tests, cette année, sur l'efficacité anticariogénique de la gomme à mâcher thérapeutique. Huit cent cinquante enfants, de la troisième à la cinquième année, participeront à cette étude. Les enfants ont subi un examen clinique et ils seront répartis en trois groupes égaux, suivant l'âge, la classe, le sexe et le statut dentaire. Les trois groupes recevront à l'automne des brosses à dent et de la pâte dentifrice non identifiée à employer chez eux. Deux des groupes prendront, de plus, trois tablettes par jour des deux gommes qui feront l'objet du test. L'étude continuera pendant deux ans avec d'autres examens prévus pour mai et juin 1968 et 1969.

Task Force Named for National Children's Dental Program

A further step toward the development of a national children's dental health program was taken August 30 when CDA President W. P. Munsie announced the appointment of seven dentists as members of a task force to expedite formulation of the program. The members are: W. P. Munsie, Vancouver; J. P. Coupland, Ottawa; Henri Brouillet, Montreal; H. R. MacLean, Edmonton; W. G. Bruce, Kin-cardine, Ontario; A. L. MacIsaac, Charlottetown; and W. J. Spence, Toronto. All are members of the CDA Executive Council.

The action stems from a directive from the Board of Governors requesting the Executive Council to give "immediate top priority consideration to the establishment of such a task force." During the past year a subcommittee of the Dental Services Committee has been developing a draft for a national children's dental program. It is expected that the task force will supervise the final stages of development and promotion of this plan.

Canada and the Provinces

Ottawa Official Advocates National Voluntary Dental Health Society

A federal official has reiterated that various dental services could be insured under the Canada Medical Care Act (Bill C-227) without further parliamentary approval. R. A. Connor, chief of the Dental Health Division, Department of

National Health and Welfare, cited the "Other Health Services" section of the act whereby selected dental services provided by dentists under specified conditions may be classified as "required services." According to Dr. Connor, other and additional dental services could be added to the list of "required" services without the necessity of seeking parliamentary approval for further legislation.

Dr. Connor also claimed that public demand for treatment does not match the need for dental care. "It is our responsibility as a health profession to increase it as rapidly and effectively as we can," he declared. If this were done and demand began to match the need, the gap between dental care facilities and demand would be beyond dispute.

Dr. Connor, himself a former practising dentist, warned that public apathy to dental health poses the greatest threat to the dentist's autonomous professional status. Stressing the need for enlightened public interest in dental care, he urges the establishment of a lay voluntary national dental health organization to succeed the Canadian Dental Hygiene Council which expired a generation ago. "Without public support we lack strong allies in maintaining our status and our economy. I am not advocating a lay front for our professional associations. I am suggesting a strong independent body which will carefully appraise the recommendations of our associations and of governments as well as the problems of the public and then actively support those proposals they assess to be in the best overall public in-

terest. Such a lay body could be a safeguard for both the public and the profession against inequitable and impractical plans. Exclusively professional associations alone cannot do what needs to be done. They are suspect by both the politicians and the public. 'Denticare' is not yet a fact but it is surely appearing on the horizon," Dr. Connor contended.

Nova Scotia Dentist Urges More Effective Dental Organization

In the June issue of *NDSA News* (published by the Nova Scotia Dental Association) Halifax dentist R. A. I. Epstein made several suggestions for improving the effectiveness of the dental profession in the province. It is essential for the profession to be better organized and informed, he asserted. It is imperative for the NSDA to have effective, full-time, executive personnel. Annual dues of \$200 or \$250 may be necessary but this is 'peanuts' in comparison to the sum total annually grossed by Nova Scotia dentists.

CMA Will Move to Ottawa

The Canadian Medical Association has chosen to move its headquarters from Toronto to Ottawa. The decision was reached during the CMA's one hundredth annual meeting held in Quebec City and Montreal June 9-22.

Sixty-eight Years in Practice

E. R. H. Hart of Sackville, New Brunswick, is probably the oldest practising dentist in Canada. He has been at the same address for 68 years and has as yet no plans to retire.

On returning to New Brunswick after graduating from the University of Pennsylvania in 1898, Dr. Hart was required to pass another set of examinations. He then established a practice in 1899 which he has carried on ever since except for one year of illness.

Dr. Hart can remember the introduction of Novocaine in the place of cocaine.

He made most of his own dentures, bridges and crowns — he still prefers porcelain to modern plastics. In his office is one of the very early x-ray machines.

Fluoridation is not new to Dr. Hart. He learned about the benefits of fluorides on teeth while still at university and strongly believes that fluoridation can help reduce the incidence of tooth decay.

International Items

FDI Meets in Bulgaria Next Year

Headquarters for international dentistry will be on the shores of the Black Sea when the Fédération Dentaire Internationale holds its next annual meeting—the fifty-sixth—in Bulgaria. The meeting, to take place at Varna, a modern seaside resort, is scheduled for September 17-21, 1968.

The four day scientific program will have as its main themes: early diagnosis of oral tumours; reactions of oral tissues to prosthetic appliances; and diagnostic methods in dentistry.

A colourful social program will include opera performances and concerts, dinner and 'fire dancing,' a masked ball, grape picking and wine tasting, opportunities for hunting and a boat trip on the Black Sea. Interesting excursions are also planned to the Rila Monastery, ancient Roman and Byzantine towns and fortifications, the Valley of the Roses and the Thracian Crypt, as well as to Odessa, Moscow, Leningrad, Athens, Bucharest, Belgrade and other interesting cities.

Travel and hotel accommodation will be arranged by Balkantourist, Boulevard Lenin 1, Sofia, Bulgaria. Enrolment and hotel reservation forms were included in the July 1967 *FDI News Letter*.

California: Move to Link Licence Renewal with Continuing Education

A draft bill recently introduced in the California legislature will require continuing education as a condition to the re-

newal of a pharmacist's certificate of registration. Commenting on the action, an editorial in the July issue of the *Journal of the Southern California Dental Association* says "... Many dentists on a voluntary basis are not keeping abreast in a continued education program. We should consider carefully some educational requirements for renewing the dental licence."

Paedodontic Meeting in Paris Nov. 18

The French Paedodontic Society will hold its first scientific meeting in Paris on November 18. Location of the meeting is the International Conference Centre on the avenue Kléber. Further information may be obtained from Mr. M. Schouker, executive secretary, Société Française de Pédodontie, 33 rue Poissonnière, Paris 2e, France.

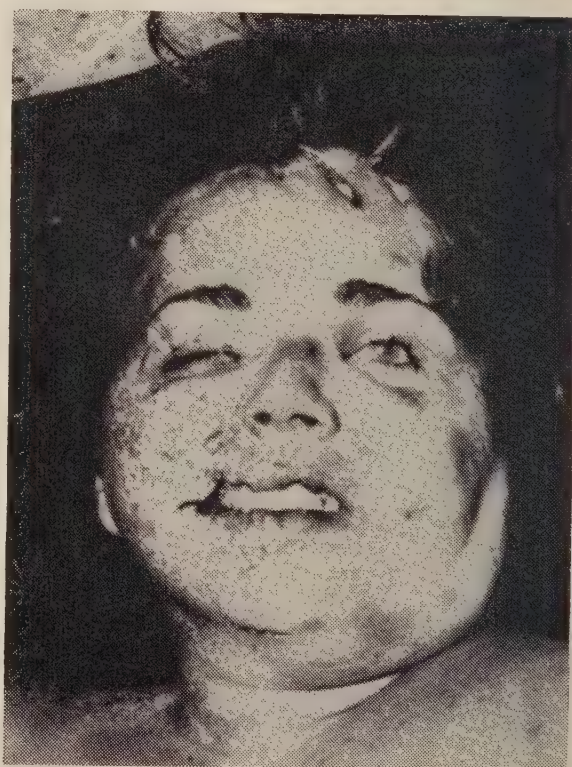
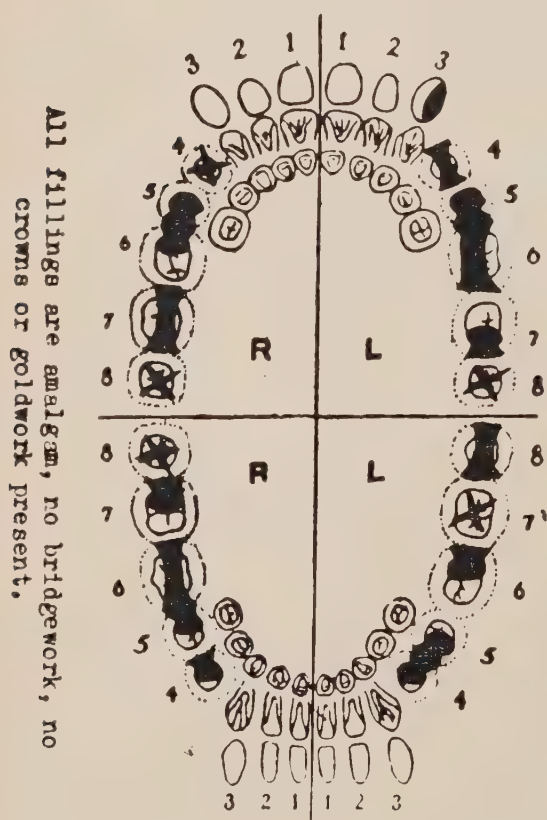
Police Seek Aid in Identifying Corpse

A request has been received from the commissioner of the Dublin, Ireland, police department for assistance in identifying a woman whose body was found at Doolin, County Clare, Ireland, on May 24, 1967. The following is a description of this person:

"Thirty to 40 years; 5 ft. 2½ in., 140-150 lbs; round face, straight nose; stout build; strong features; eyebrows plucked; bluish-grey eyes; jet black hair, cut short, apparently having been recently cut at

the back; ears pierced; sallow complexion; tanned skin; good even teeth; small well manicured hands; long slender fingers with pinkish nail varnish; body partially dressed."

Illustrated are copies of the deceased's photograph and dental chart which was compiled from casts taken of the deceased's teeth. All fillings are of amalgam. No bridges or crowns are present. Any reader who associates either the photo or the dental chart with a particular patient is asked to inform the nearest detachment of the Royal Canadian Mounted Police accordingly.



Second Dixie Seminar in Florida, Jan. '68

The American Institute of Oral Sciences will sponsor the second Dixie Dental Seminar at the Diplomat West Hotel in Hollywood, Florida, January 11-14, 1968.

This seminar is directed to practising dentists who want to learn about the latest findings in basic and clinical sciences. Ample opportunity will be available for informal discussions and audience participation.

The attendance fee of \$225 includes accommodation, meals and gratuities. Wives will be permitted to attend for a nominal fee.

Further information may be obtained from S. N. Bhaskar, United States Army Institute of Dental Research, Walter Reed Medical Centre, Washington, DC 20012, USA.

Occlusodontia Academy Meets in Chicago Feb. 3

Canadian dentists have been invited to attend the 12th meeting of the American Academy of Occlusodontia in Chicago, February 3, 1968. The theme of the meeting will be a symposium on equilibration.

For further information please write to F. H. Higgins, secretary, American Academy of Occlusodontia, 101 North Evergreen, Elmhurst, Illinois, USA.

Jewish Memorial Hospital Offers Internships

The Jewish Memorial Hospital of New York is offering three rotating internships from July 1, 1968 to June 30, 1969. The dental internship program will include training in anaesthesiology, endodontics, paedodontics, problem and handicapped patients, periodontics, oral surgery, prosthodontics (fixed and removable), orthodontics and operative dentistry.

Dental interns receive a salary of \$350 per month, plus meals, uniforms and maintenance. Further information and application forms may be obtained by writing to the Director of Dentistry, Jewish Memorial Hospital, Broadway and 196th Street, New York, NY 10040, USA.

Dental Organizations**Endodontic Academy Invites Applications for Membership**

The Canadian Academy of Endodontics has extended an invitation to all Canadian dentists to join the organization as active or associate members. The Academy, a section of the Canadian Dental Association, was organized in 1964. Those interested in joining should contact the secretary, L. J. Rosen, Suite 20, 3465 Côte des Neiges Road, Montreal 25, P. Quebec.

Dr. David Installed as President by Montreal Endodontic Group

I. L. Feinchnneider, Montreal, was recently honoured by the Montreal Endodontia Society upon his retirement as the group's 1966-67 president. His successor is R. J. David.

The society held four clinical meetings during the past year. The essayists and the titles of their subjects were: Herbert Schilder of Boston, "Relationship between endodontics and periodontics," at a meeting held jointly with the Canadian Academy of Dental Sciences October 1, 1966; Martin Brannstrom of Stockholm, "Pulp reaction to caries," March 2, 1967; and Yury Kuttler of Nuevo Leon, Mexico, "Present status and different concepts of endodontics," April 17, 1967. The final meeting was devoted to a discussion of endodontic problem cases.

A seminar on the maxillary sinus and the roots of the maxillary teeth is projected for the 1967-68 program. Further information may be obtained from the society's secretary, J. A. Guay, 132 rue Radisson, Trois-Rivières, P. Quebec.

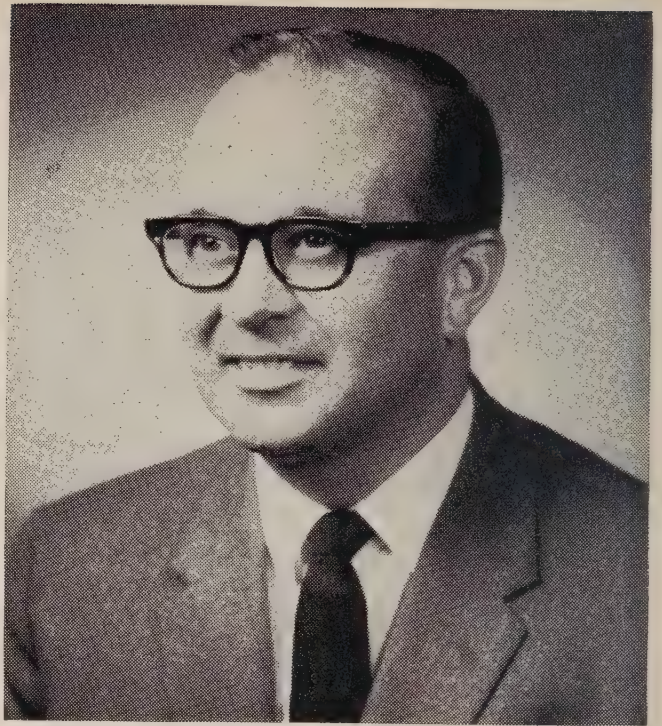
Dr. Marshall Elected President of Toronto Academy

Recent elections by the Toronto Academy of Dentistry resulted in the appointment of G. M. Marshall as president for the 1967-68 term. Born and educated in Toronto, Dr. Marshall graduated from the University of Toronto in 1955, receiving

the Students' Administrative Council Honour Award. He has served on committees of the Canadian and Ontario Dental Associations and on the Council of the North Toronto Dental Association. He is currently a member of the University of Toronto's teaching staff and serves on the House Committee of Hart House as faculty adviser.

Also elected to the Academy's Senior Council were M. G. Hardy, past president; B. J. Levin, president-elect; G. C. Stirling, secretary; and W. J. McColeman, treasurer.

District councillors are D. M. McKee and W. S. MacKenzie, North Toronto; M. A. Kamienski and Bernard Crystal, East Toronto; J. T. Hing and G. P. Smith, West Toronto; and W. L. Heaslip and J. B. Pepper, Central Toronto. Mrs. R. F. Jones is executive secretary.



A. H. Lane, Edmonton, was recently elected president of the Alberta Dental Association. A native of Somerville, Massachusetts, he graduated in 1949 from the Faculty of Dentistry, McGill University, Montreal. Dr. Lane was president of the Edmonton and District Dental Society 1957-8 and has served as a director of the Alberta Dental Association since 1964. He is vice-chief of dental staff at Edmonton's Royal Alexandra Hospital.

Dr. Peacock Heads Saskatoon Society

G. H. Peacock was recently named president of the Saskatoon Dental Society for the term 1967-68. Other officers elected were S. O. Sawa, vice-president, and R. Chayka, secretary-treasurer.



L. E. English

BC College Re-elects Dr. English

L. E. English of Kamloops was recently re-elected president of the College of Dental Surgeons of British Columbia for a further two year term. Other members of the College's Council are D. J. Yeo, vice-president, and G. F. Copithorne, treasurer.

Essex County Association Elects Officers

E. H. Mazak was recently elected president of the Essex County Dental Association for the 1967-68 term. Other officers are P. J. Courey, vice-president; J. M. Emon, treasurer; and M. A. Hakem, secretary.



G. M. Marshall

Hygienists Elect Officers

Mrs. W. J. Gardner of Vancouver was recently elected president of the Canadian Dental Hygienists Association. She succeeds Miss Bonnie Snowdon of Islington, Ontario. Other officers named with Mrs. Gardner were: Mrs. Shelley Altman, Winnipeg, president-elect; Mrs. J. Anderson, Port Alberni, British Columbia, treasurer; and Mrs. Bonnie Craig, Vancouver, secretary. Chairmen of committees are: Mrs. Margaret MacLean, Edmonton, Constitution; Miss Pat Doherty, Winnipeg, Editorial; Miss Bonnie Snowdon, Membership; Mrs. Shelley Altman, Nom-

inating; Mrs. Margaret Coleman, Toronto, Education and Recruitment; and Miss Louise Pollard, Winnipeg, Special.

Canadian Dental Schools

Dentistry to Benefit from Additional Major Health Facilities Construction

Dental education will benefit from the more than \$69 million worth of construction now in progress at Toronto and Western Ontario Universities. The projects include:

A 750,000 square foot \$65 million medical sciences complex to be completed at the University of Toronto in 1969, and

A Federal Health Resources grant of \$4,200,470 toward construction of the \$8,430,000 dental sciences building at the University of Western Ontario, London.

Manitoba Faculty Expanding

The contract for a \$900,000 addition to the Faculty of Dentistry of the University of Manitoba was let in June of this year. The completion date is scheduled for early 1968.

The 20,000 sq. ft. extension will take the form of a third floor on the existing two storey structure plus a fourth floor animal house. The new space is designed almost entirely to accommodate graduate study and research in the basic and clinical sciences. It will relieve congested areas and will permit an additional number of students to be enrolled in graduate programs in orthodontics, paedodontics, restorative dentistry, dental materials, oral pathology and oral biology (biochemistry and physiology). No additional undergraduate enrolment in dentistry is contemplated, but commencing in the fall of 1967 admissions to dental hygiene will be increased by five to 20 students per year.

Montréal U Offers 12 Postgraduate Courses

A dozen postgraduate courses for general practitioners will be given at the Faculty

of Dental Surgery, Université de Montréal, during 1967-68. They cover such topics as periodontics, endodontics, hospital dentistry, operative dentistry, dental therapeutics, full and partial prosthodontics, crown and bridge prosthodontics, anatomy and oral cancer. Each course is of one to three days' duration. For further information please write to the Graduate and Postgraduate Education Committee, Faculty of Dental Surgery, Université de Montréal, CP 6128, Montréal 3, P. Quebec.

Dr. Grainger to UBC

Dean S. Wah Leung of the Faculty of Dentistry, University of British Columbia, has announced the appointment of R. M. Grainger as professor of restorative dentistry and director of the faculty's dental clinics. Dr. Grainger is a graduate of the University of Toronto where he received the degrees of doctor of dental surgery, master of dental science and a diploma in dental public health. He comes to Vancouver from the University of Toronto where he was director of the Division of Dental Research. One of the world's leading authorities on dental epidemiology and biostatistics, Dr. Grainger is expected to continue research in these areas utilizing UBC's computing facilities. He is the author of more than 50 articles, manuals and monographs on dental subjects and is currently engaged in writing or editing a seven-manual series for the World Health Organization entitled "An International System of Dental Epidemiology."

Royal Canadian Dental Corps

Brig. Kearney Attends FDI Paris Congress

Brig. B. P. Kearney, Director General of Dental Services, attended the annual meeting of the Fédération Dentaire Internationale in Paris, France, July 5-14, 1967. While overseas, he inspected No. 4 Field Dental Company in Germany July 12-15.

Brig. Kearney and Maj. J. V. P. Chat-

win, dental public health officer, also recently attended a workshop on preventive dentistry at Walter Reed Army Medical Centre, Washington, DC, and observed the US Navy preventive dentistry program in the Washington area.

28 New Officers Join Corps

A cordial welcome has been extended to the following personnel on their recent graduation and promotion to captain:

Captains D. G. J. Chausse, J. F. D. Cormier, S. J. Dion, Y. J. A. Gagnon, J. G. Jacques, G. O. Lepage and G. J. H. Pinsonnault from the Université de Montréal;

Captains C. W. Kearns, H. A. Pankratz, G. C. Post and R. J. Shirkey from the University of Manitoba, Winnipeg;

Captains M. E. Blassetti, D. L. Brown, E. D. Craig, R. M. Depledge, T. J. Erskine, N. S. Misura and C. J. Sharpe from the University of Alberta, Edmonton;

Captains T. M. Clark, D. A. Divine, J. W. Montgomery, W. J. Percival, T. C. Ringland and B. W. Yates from the University of Toronto; and

Captains W. D. Fiolek, W. A. Gray, B. L. P. Hart and D. A. Stewart from Dalhousie University, Halifax.

Economics

Dentists Earn Fourth Highest Income in 1965

Dentists' incomes averaged \$15,693 making them the fourth highest income earners in 1965. Figures released by the Department of National Revenue show physicians at the top of the income ladder (\$23,229), followed by engineers and architects (\$19,278), and lawyers and notaries (\$19,191).

Latest figures suggest that the gap between physicians' and dentists' incomes may continue to widen. The April 1967 consumer price index reveals that in the preceding six month period the cost of the physicians' services rose by 8.6 per cent. The comparable increase in the cost of dentists' services was 2.5 per cent.

New Brunswick Dental Welfare Plan in Difficulty

The New Brunswick government has been providing medical, dental and pharmaceutical services under the Canada Assistance Plan for some 32,000 indigent residents since the beginning of the year. But the dental phase of the program is encountering difficulties. According to the June 8 *Fredericton Gleaner*, Fredericton dentist R. H. Dolan has charged that the New Brunswick Department of Youth and Welfare did not contact the New Brunswick Dental Society until last December, after agreements had already been made with physicians, pharmacists, opticians and morticians. No agreement on fees has yet been reached between the dental society and the department, he said.

Pending this agreement, the department will authorize only what it terms emergency care but this has not been defined. Many welfare patients do not tell the dentist that they are in this category until after treatment has been completed. When they are told that the government will pay only for emergency care and not for any other service, the dentist is left without remuneration.

The NB youth and welfare minister reportedly says that negotiations with the dental society are under way. The government has asked the dental society to accept a reduced fee schedule for welfare patients.

Predict Burgeoning Dental Plans for BC

W. M. Joiner, president of the Dental Services Association of British Columbia, predicts that voluntary dental plans will be a multimillion dollar business within five years. The Vancouver dentist said that three employee groups involving more than 6,000 BC workers and their families are so far enrolled in his organization's group plans. Four more are expected to enrol this fall. Any homogeneous group of 50 or more persons is eligible to apply for coverage. Ninety per cent of the dentists of BC are members of DSABC, the provincial dental service corporation.

Saskatchewan Dental Plan Only on People's Vote

The provincial government will not propose a prepaid dental care program unless the people indicate through a plebiscite that they want it, Saskatchewan Premier Ross Thatcher told guests at a Liberal banquet in Lafleche, Saskatchewan, June 15. "Anyone who suggests that measures of this kind can be 'free' is simply not being honest with our people," he said.

The premier also said that his government is still concerned about the shortage of dentists in Saskatchewan. The University of Saskatchewan has been asked to speed up construction of the dental school in Saskatoon so that courses can begin next year rather than in 1969 as originally planned, he said.

Fluoridation

One in Four Canadians Gets Fluoridated Water

Nearly five million (4,960,557) Canadians in 277 communities received fluoridated water as of January 1, 1967. This represents 24.9 per cent of the country's total population and 36.6 per cent of those on piped drinking water.

Major centres using fluoridation are Toronto, Winnipeg, Ottawa, Windsor, Halifax, Saskatoon, and Laval, P. Quebec. Fluoridation has also been approved for Hamilton and London in Ontario and Edmonton, Alberta.

Public Health

Advocate Topical Fluoride Applications for 90,000 Toronto School Children

All of Toronto's more than 90,000 elementary school children may be given a periodic prophylaxis with a fluoride-containing prophylaxis paste followed by a topical application of an acidulated fluoride phosphate solution. The proposal, contained in the 1966 annual report of the Toronto Department of Public

Health, is being studied by health officials. If adopted, the plan would be implemented by teams of dental hygienists. "In this way," says city Dental Director H. S. Grey, "children who are also consuming fluoridated water, as are Toronto's children, may experience up to 75 per cent less dental decay."

Dr. Grey pointed out that dental hygienist-led teams now provide preschool preventive services in seven of the city's eight health districts. He envisions further extension of this service to the eighth health district and to Forest Hill Village and Swansea, two municipalities that were incorporated with the city on January 1 of this year.

Dr. Grey also proposed the gradual replacement of dentists by dental hygienists on the department's eight dental inspection teams. The move would make more dentists available for the department's clinical program. In 1966 Toronto's dental inspection teams screened 115,637 students in the city's public, separate and secondary schools.

New Index for Assessing Handicapping Malocclusion

The American Association of Orthodontists has announced the completion of a definition and criteria for assessing handicapping malocclusion.

Handicapping malocclusion and handicapping dentofacial deformity are defined as "conditions that constitute a hazard to the maintenance of oral health and interfere with the well-being of the child by adversely affecting dentofacial aesthetics, mandibular function or speech."

The new index and criteria provide a means for measuring handicapping malocclusion that can be accurately replicated by trained examiners. The information thus obtained will be useful for the dental profession in general and to administrators of dental prepayment and insurance programs.

The American Association of Orthodontists has also developed a 'Handicapping Malocclusion Assessment Record.' This provides guidelines and weights for

assessing the severity of malocclusion without the use of millimetre measurements. Assessments can be made from casts or directly in the mouth. The assessment record is intended to disclose whether a handicapping malocclusion is present and to assess its severity according to the criteria and weights assigned to it. Point values are assigned to intra-arch deviation, interarch deviations and dentofacial deviations. The weights are based on tested clinical orthodontic values based on the effect of the malocclusion on dental health, function and aesthetics.

Research

Six Canadians at Michigan Conference on Craniofacial Growth

Six Canadian dentists were present when leading authorities on genetics, statistics, and bone physiology as related to growth of the head and face met May 1-3 at the University of Michigan. Representing Canada were: Arto Demirjian, Montreal; A. W. Eastwood, Halifax; R. M. Grainger, Toronto; G. H. Sperber, Edmonton; A. T. Storey and D. G. Woodside, Toronto. Other participants came from Australia, Denmark, Finland, India, Jamaica, Netherlands, Switzerland, the United Kingdom and USA. Co-chairmen were R. E. Moyers, director, Centre for Human Growth and Development, University of Michigan, and W. M. Krogman, director, Philadelphia Centre for Research in Child Growth.

The conference, which was sponsored by the US National Institute of Dental Research, had a twofold objective: to assess methods currently used in the study of craniofacial growth as a guide for future research, and to focus attention on problems ripe for productive investigation. Pressing problems in the areas of genetics, statistical analysis, and bone physiology commanded primary interest. A re-evaluation of research methods in this area has long been considered overdue, and the conference yielded a critical assessment of the limitations of current

studies of normal subjects and subjects with facial deformities.

The formal introductory papers encompassed ontogenetic, comparative and genetic aspects of craniofacial growth. M. L. Moss (anatomist, Columbia University) reviewed anthropological (metrical), comparative anatomical, embryological and orthodontic (cephalometric) contributions to the elucidation of craniofacial ontogeny. He decried the tendency to purely metrical and statistical evaluation of growth phenomena that these disciplines engender, and stressed that a biological approach is more meaningful for analysis of cephalogenesis. To this end Moss developed his concept of 'functional matrices,' consisting of soft tissues (muscles, glands, spaces) performing specific functions to which skeletal tissues are related. Bones thereby become skeletal units reflecting functional activities. Sutures and epiphyses, accordingly, are not primary growth centres but sites of passive 'filling in.' Functional matrices are the primary morphogenetic forces.

P. Dullemeijer (zoologist, Leiden, Netherlands) dealt with a variety of cranial forms in fishes, birds, snakes and mammals, and related the morphology of these various forms to the growth of the brain, eye and other sense organs. A dynamic interrelationship of form with function and of 'atomistic' parts with a 'holistic' total organism was stressed, with awareness of the difficulties of distinguishing functional components. Roche (anatomist, Melbourne, Australia) noted that it is the durability of bones that directs our attention to their shapes which are in reality the expression of the influence of soft tissues. Preservation and study of the latter would more accurately define the forces of stress and growth. Moss noted that bony protuberances (chins, genial tubercles, and so forth) are merely expressions of soft tissue forces and are not inherent in basic bone shapes.

Sidney Horowitz (orthodontist, New York University) and Richard Osborne (geneticist, University of Wisconsin) briefly reviewed the history of taxonomy and genetics and then cited craniofacial traits having established genetic foundations. Dental traits were noted to vary between races, and sibling and twin stud-

ies were quoted as evidence for the genetic basis of dens invaginatus, tooth size, dental calcification and eruption times. These established inherited traits should provide extremely useful tools for chromosomal linkage and aberration studies. Roche commented that there is no evidence for direct gene action on bone formation but that there is evidence for gene action on soft tissues.

Six papers on mechanisms of bone growth dealt with aspects of cartilage growth, endochondral ossification, mineral metabolism and electric phenomena in bone stressing. Carl Anderson (orthopaedist, University of California) dealt with normal and abnormal life cycles of chondrocytes in determining epiphyseal cartilage growth. The mineralization of cartilage and its invasion of osteoprogenitor cells was illustrated by electron microscopy and the responsibilities of chondrocyte mitochondria, oxygen tension and calcium and phosphate blood levels for endochondral ossification were discussed.

Kalevi Koski (orthodontist, University of Turku, Finland) concentrated on the differing nature of the three basic cranial growth cartilages — the spheno-occipital synchondrosis, the nasal cartilage and the mandibular condylar cartilage. Differences were noted in the *in situ* ossification patterns of the various cartilages, in the behaviour of animal transplants of synchondrosal and condylar cartilage into brain and subcutaneous tissues. Synchondrosal cartilage is greatly inhibited in growth by transplantation, whereas condylar cartilage merely loses its characteristic shape.

The metabolism of minerals during bone growth and calcium-phosphorous homeostasis was discussed by James Yaeger (histologist, University of Illinois), who believes the function of osteocytes is to maintain a diffusion pathway for minerals by preventing the matrix surrounding them from mineralizing. Bone turnover and replacement is a function of mineral homeostatic demands.

Vital staining of bone by injecting animals with alizarin red S enabled David Hoyte (anatomist, University of the West Indies, Jamaica) to study the sites of deposition, resorption and direction of growth of the sphenoid bone. J. H.

McElhaney (engineer, University of West Virginia) dealt with the phenomenon of piezo-electricity in measuring the electrical polarization that occurs when bone is deformed. He speculated upon the possible influence of electric fields on bone metabolism in demonstrating that negative fields show fewer Haversian systems than positive fields in which many young developing Haversian systems occur.

Beni Solow (orthodontist, Royal Dental College, Copenhagen) described Arne Björk's method of implanting metal studs into the cranial bones of children and following growth patterns by cephalometric radiographs over several years. A case of severe bilateral hypoplasia of the mandible, which was 'studded' at 11 years of age and followed through to 19 years, was demonstrated.

Prediction of craniofacial growth was debated by orthodontists, statisticians and paediatricians in a seminar that attempted to transfer the biologists' findings into formulae that clinicians could use in treating orthodontic cases. Prediction — not only of ultimate size but also of harmony of shape of facial features — was sought by the clinicians, but could not be presently supplied by statisticians. The orthodontists' attempts to 'standardize' facial forms were questioned on aesthetic grounds by a physician in the audience.

A seminar on 'Form and Function' was the highlight of the conference. The shapes of bones were judged to be a function of the forces acting upon them, and the mechanisms of translation of forces into shapes were widely discussed. Wolff's Law, dealing with the architecture of bone reflecting flexural stresses and strains and hydraulic pressures, was invoked by Harold Frost (orthopaedist, Detroit) in a purely mechanical explanation of bone form. Donald Enlow (anatomist, University of Michigan) disagreed, arguing for the osseous dignity of bone possessing some basic inherent shape of its own which is subject to modification. The skeleton was, however, depicted by L. C. Johnson (Armed Forces Institute of Pathology, Washington) as a passive record of past vascular, nervous, endocrine and muscular influences.

Statistics dominated the last part of the conference in discussions concerned with

genetic and environmental variations in analysing and predicting craniofacial growth. The frequency of phenotypic expressions of inherited genotypes computed on the basis of statistical analyses was the subject of six papers presented by statisticians, orthodontists and geneticists. A panel of these experts explored the application of statistical methods to probability analyses of growth phenomena. The use of computers was demonstrated in processing and handling growth data. The ultimate ability to predict the extent of growth (height, jaw growth, and so forth) in individual cases was forecast by the panel. Computerized calculations, based on data of muscular forces, racial, parental, nutritional and hormonal correlations, will be used for this purpose. With such foreknowledge the clinician will be in a position to intercept incipient maldevelopmental problems.

Research Conference in Cincinnati Next April

The American College of Dentists will schedule its sixth annual "Institute for Advanced Education in Dental Research" next April. The first session (two weeks) will be held April 15-26, 1968, at the Carrousel Inn, Cincinnati, Ohio. The dates and place of the second session (one week) will be announced later. The second session is usually held in Chicago in October.

The topic for the 1968 institute is "Epidemiology and Biometry." The principal mentors will be A. L. Russell, University of Michigan School of Public Health, and R. M. Grainger, Faculty of Dentistry, University of British Columbia.

Research workers interested in attending should apply before November 1, 1967, to T. F. McBride, assistant secretary, American College of Dentists, 4236 Lindell Boulevard, St. Louis, Missouri 63108, USA. Material submitted should include a curriculum vitae, list of pertinent publications, and a detailed account of previous and present activities in the subject field; also a statement of the type of discussion topics that would be most use-

ful to the applicant's interests. The ACD reimburses trainees for their travel expenses and pays a stipend based on the cost of living.

Regional Conventions

Toronto Academy Winter Clinic Nov. 23

The Toronto Academy of Dentistry has announced the following program details for the annual Winter Clinic at the Royal York Hotel, Thursday, November 23:

F. C. Jerbi, University of Maryland: Essentials to the success of partial dentures.
J. D. Distasio, Tufts University, Boston: Space maintainers—their use and abuse.
Edward Dunlop, M.L.A., Canadian Arthritis Society: Luncheon address—How I see Canada.

Deaths

Apps, Eric Cyril. 56. Kenora, Ontario. University of Toronto, 1934. 9-7-67. Survived by Gladys (wife), Dr. R. C. and David (sons) and Judith (daughter).

Cummer, John Albert. 63. Cedar Springs, Ontario. University of Toronto, 1929. 13-7-67. Survived by Ralph (brother), Mrs. John Aikman (sister) and Mrs. A. J. Cummer (stepmother).

Furlong, Francis Joseph. 75. Windsor, Ontario. Royal College of Dental Surgeons of Ontario, 1917. 14-7-67. Survived by Jessie Elizabeth (wife); Dr. F. J. Furlong (son); Mrs. Fred J. McGrath (daughter); and W. H. Furlong (brother).

Hambley, Robert Beatty. 53. North Bay, Ontario. University of Toronto, 1940. 30-6-67. Survived by Isabel (wife).

MacGregor, Roderick Guy. 75. New Glasgow, Nova Scotia. McGill University, 1926. 13-7-67. Survived by Beatrice (wife).

Manegre, J. A. 48. Tracy, Quebec. Université de Montréal, 1948. 27-6-67.

Ramore, William Dominic. 84. Port Arthur, Ontario. Royal College of Dental Surgeons of Ontario, 1908. 27-6-67.

Survived by Mabel (wife); William (son); Mrs. Rex LeCocq (daughter); and eight grandchildren.

Snow, Herbert. 90. Kitchener, Ontario. Baltimore College of Dental Surgery, University of Maryland, 1907. 23-7-67.

in memoriam

Pearl L. Beavers

Mrs. Pearl L. Beavers of Morrisburg, Ontario, died on June 7, 1967. Born in Cornwall, Ontario, Mrs. Beavers was the wife of George E. Beavers who founded the first Canadian dental bur factory at Morrisburg which today is world-wide. Mrs. Beavers was the constant companion, inspiration and helpmate of her husband in establishing business relations in many of the 74 countries where the Beavers Dental Products are exported and sold. Besides her husband, Mrs. Beavers is survived by a daughter, Mrs. J. H. Wilson of Hudson Heights, P. Quebec; a sister, Mrs. Orpha Rankin of Cornwall; and a stepson, P. A. Beavers of Morrisburg.

Francis Joseph Furlong

Dr. F. J. Furlong of Windsor, Ontario, died on July 14, 1967. He was 75. A 1917 graduate of the Royal College of Dental Surgeons of Ontario, Dr. Furlong practised for 50 years. He was a former president of the Essex County Dental Association and served as a director of the Royal College of Dental Surgeons of Ontario from 1939 to 1945. He was a fellow of the International College of Dentists and a life member of the American Association of Orthodontists and the Great Lakes Society of Orthodontists. Besides his wife, Jessie Elizabeth, Dr. Furlong is survived by a son, Dr. Frank J. of Windsor; a daughter, Mrs. F. J. Mc-

Grath, Windsor; a brother, W. H., Windsor; and 12 grandchildren.

Stanley Graham McCaughey

Dr. S. G. McCaughey of Ottawa died on May 20, 1967, at the age of 76. Born in Kemptville, Ontario, in 1890, Dr. McCaughey graduated from the Royal College of Dental Surgeons of Ontario in 1912. Dr. McCaughey was president of the Ottawa Dental Society in 1922-23 and of the Eastern Ontario Dental Association in 1928. He practised in Ottawa for 55 years. Surviving Dr. McCaughey are his wife, Muriel; two sons, Lloyd and Don, both of Ottawa; and one daughter, Mrs. Bruce Wright of Waterloo, Ontario.

Charles E. Simard

Le docteur Charles E. Simard est décédé accidentellement le 11 mai 1967, à l'âge de 43 ans. Originaire de Bagotville, le docteur Simard avait étudié dans sa ville natale, au séminaire de Chicoutimi, et à l'Université de Montréal dont il obtint un doctorat en chirurgie dentaire en 1953.

Après avoir exercé sa profession à Bagotville pendant 10 ans, il entra au service du Ministère de la Santé. Diplômé de l'Ecole d'hygiène de l'Université de Montréal en 1966, il fut nommé dentiste hygiéniste régional au Ministère de la Santé.

Le docteur Simard a été président de la Société dentaire du Saguenay, président de l'Association dentaire de la province de Québec et gouverneur du Collège des chirurgiens-dentistes de la province de Québec.

Le docteur Simard avait aussi déployé son activité au niveau des Chambres de Commerce régionales.

Il laisse dans le deuil son épouse et deux fils.

Additions • Acquisitions

AMERICAN DENTAL ASSOCIATION. COUNCIL ON DENTAL THERAPEUTICS. Accepted dental remedies. Ed. 32. Chicago, 1967. 267 p.

ANDERSON, J. N. and STORER, R. Immediate and replacement dentures. Oxford, Blackwell Scientific, 1966. 362 p. illus. \$14.25

BROWN, H. K., YEO, D. J. and POWNALL, K. F. What is the nature of dental public health — its objectives? Vol. 1 — Report. Vol. II — A selected bibliography. University of British Columbia, Faculty of Dentistry, Vancouver, 1966. 320 p. Mimeo.

EUROPEAN ORTHODONTIC SOCIETY. Report of the 41st Congress held in Stockholm, Sweden, 15th-19th June, 1965. 391 p. illus.

GARDNER, A. F. Diseases and neoplasms of the salivary glands with clinical correlations to the oral cavity. (Practical Dental Monographs, Nov.-Dec. 1966) Chicago, Year Book, 1966. 52 p. illus.

GOLDMAN, H. M. et al. Current therapy in dentistry. Vol. 2. St. Louis, Mosby, 1966. 848 p. illus. \$21.10

HAM, A. W. Histology. Ed. 5. Philadelphia, Lippincott, 1965. 1041 p. illus. \$14.50

HARTLAND, J. Medical and dental hypnosis and its clinical applications. London, Bailliere, Tindall & Cassell, 1966. 346 p. \$9.00

INTERNATIONAL ACADEMY OF ORAL PATHOLOGY. Second proceedings of the conference held at Melbourne, Australia, September 1-4, 1965. 147 p.

JORDENSEN, N. B. and HAYDEN, J., Jr. Premedication local and general anesthesia in dentistry. Philadelphia, Lea & Febiger, 1967. 158 p. illus. \$8.25

KUTSCHER, A. H. et al. Pharmacology for the dental hygienist. Philadelphia, Lea & Febiger, 1967. 358 p. \$10.50

THE MERCK MANUAL OF DIAGNOSIS AND THERAPY. Ed. 11. Montreal, Merck & Co. Ltd., 1966. 1850 p. \$7.50

MOODIE, S. Life in the clearings. Toronto, Macmillan Co. of Canada, Ltd., 1959. 298 p. illus. \$5.50

NIPPON DENTAL COLLEGE. Annual publications. Vol. 3. Tokyo, 1966. 62 p.

ORFANOS, M. A guide to the Northwestern University Dental School Library. Chicago, 1965. 39 p. Mimeo.

ORFANOS, M. Suggested dental books for a non-dental library with a dental hygiene curriculum. Chicago, Northwestern University Dental School, 1966. 20 p. Mimeo.

ORTHODONTIC DIRECTORY OF THE WORLD. Ed. 23 1966. Nashville, Tenn., Wm. H. Oliver, 1966. 256 p.

PETERSON, S. The dentist and his assistant. Ed. 2. St. Louis, Mosby, 1967. 445 p. illus. \$10.80

PROCEEDINGS OF THE HEMISPHERIC CONFERENCE. Better oral health for the Americas. Sept. 27-Oct. 1, 1966. San Juan, Puerto Rico, 1966. 75 p. illus.

SCHULTZ, L. C. et al. Operative dentistry. Philadelphia, Lea & Febiger, 1966. 296 p. illus. \$15.50

SILVERMAN, S. and GALANTE, M. Oral cancer. University of California, 1966. 44 p. illus.

STOCKFISCH, H. Der Kinetor in der Kieferorthopädie. Heidelberg, West Germany, Dr. A. Hüthig Verlag, 1966. 203 p. illus. DM 42.-

THORNTON, H. L. and KNIGHT, P. F., ed. Emergency anaesthesia. London, Edward Arnold, 1965. 451 p. illus. \$18.00

TREWEEKE, M. B. A guide to dental practice. Pergamon series on dentistry, vol. 5. 90 p. illus. \$4.40

Sound of music

Canada's headlong march toward comprehensive health care is bound to aggravate the problems of professional education. Not the least of these is the question of assuring adequate financial support to train the required health personnel. To be sure, some commendable progress has already been achieved. This is reflected by recent governmental allotments which helped to launch new dental schools and revitalize others that had been permitted to languish for too long. But such transfusions, valuable as they are, have merely served to arrest the intolerable erosion of the nation's existing dental resources. They do not dispel the critical need for further massive infusions of money to sustain the expanding requirements of dental education. And this challenge is by no means confined to the public sector of society. Private giving for dental education must not be permitted to falter at this crucial stage. Instead, it must grow as the tempo of public funding accelerates. It is therefore heartening to record the recent accomplishments of the Canadian Fund for Dental Education. This agency was sponsored by the dental profession and its allies in the dental supply industry in order to help train more dental teachers. A lusty five-year-old, the Fund has already primed dental education to the tune of more than \$54,000. A commendable achievement, indeed, but one that is hardly sufficient in the harsh light of today's critical need.

Last year the Fund received \$31,702. More than half of this came from commercial contributors whereas dentists gave only \$5,581 — less than 85 cents per Canadian dentist — an amount about which the less said the better.

It must surely be plain to everyone that the Canadian Fund for Dental Education cannot achieve its objectives without a more meaningful participation by every dentist. Business and industry, whose annual contribution budgets are a major target of the Fund, will never be persuaded about the Fund's credibility so long as the profession's stance remains equivocal. To rectify this, November has been proclaimed as Canadian Fund for Dental Education Month, a period during which the Fund is appealing to previous contributors to step up their giving and asking those who did not contribute last year to join in doing so now. A response in the form of the rustle of paper currency rather than the occasional tinkle of loose change will give the Fund the boost which it so badly needs.

Au son de la musique

L'adoption par le Canada d'un programme de soins médicaux va certainement aggraver les problèmes d'éducation professionnelle. L'une des plus importantes de ces questions est d'assurer le support financier pour former le personnel nécessaire. Des progrès louables ont été réalisés: cela est évident lorsqu'on considère les allocations faites récemment par le gouvernement pour aider à établir de nouvelles facultés dentaires et à en revitaliser d'autres que l'on avait laissé périr pendant longtemps. Mais ces transfusions, si utiles soient-elles, n'ont servi qu'à enrayer la diminution inacceptable des ressources dentaires existantes du pays. Elles n'éliminent pas le besoin critique d'infusions massives d'argent pour répondre aux exigences croissantes de l'éducation dentaire. Et ceci ne concerne pas seulement le secteur public. Les donations privées pour l'éducation dentaire sont plus que jamais nécessaires à ce stade crucial. Au lieu de décliner, elles devront augmenter au rythme accéléré d'obtention des fonds publics. C'est pourquoi il est réconfortant de noter les progrès qu'a fait récemment le Fonds canadien pour l'enseignement dentaire. Cette agence a été commanditée par la profession dentaire et par ses associés dans l'industrie des fournitures dentaires, afin d'aider la formation de personnel enseignant. Ce fonds, qui a cinq ans et qui est vigoureux, a déjà consacré à la cause de l'enseignement dentaire des sommes qui dépassent \$54,000. C'est une réalisation qui n'est pas négligeable, mais qui est encore insuffisante à la lumière cruelle des besoins critiques du moment.

Le fonds a reçu l'année dernière \$31,702. Plus de la moitié de cette somme représentait des contributions commerciales, alors que les dentistes eux-mêmes n'y avaient contribué que pour \$5,581, soit moins de 85 cents par dentiste canadien. Ce chiffre est assez éloquent pour que nous nous abstenions de tout commentaire.

Il est évident pour tout le monde que le Fonds canadien pour l'enseignement dentaire ne peut pas réaliser ses objectifs sans une participation plus significative de la part de tous les dentistes. Il serait impossible de persuader de l'importance du fonds le monde des affaires et de l'industrie auquel il est demandé les contributions principales, tant que l'attitude de la profession reste équivoque. Pour rectifier cette situation, Novembre a été choisi comme le mois du Fonds canadien pour l'enseignement dentaire, période durant laquelle le fonds fera appel aux différents patrons pour qu'ils augmentent leurs dons et demandera à ceux qui n'avaient pas contribué l'année dernière qu'ils le fassent cette année. Si la réaction se manifeste par un bruissement de billets de banque, plutôt que par le tintement de pièces de monnaie, le Fonds recevra l'aide dont il a un tel besoin.

CFDE: a national responsibility

The success of the Canadian Fund for Dental Education is due largely to you, the readers of this article, and your contemporaries. Perhaps this is because you have a better grasp of the hurdles which dental education had to overcome during the last 10 years. Or, have you been led to believe that present dental training facilities are adequate?

It is true that the capacity of Canadian universities for training dental students rose by 83 per cent between 1956 and 1966. This is a marked increase over the record of the preceding decade, 1946 to 1956, when the combined capacity of Canadian dental schools rose by less than 6 per cent. However, even with that 83 per cent increase in capacity, one-half of the qualified applicants were turned away in 1966. And where would you be today if you had been turned away in 19 — ?

Neither the dental profession, its associations, the dental industry nor the various educational institutions can be considered at fault. But the simple fact remains that dental education is failing to stay ahead of public need.

For this and for other reasons the Canadian Fund for Dental Education was formed in 1962. Operating on a non-profit basis, it generates financial support for projects which are needed, but not provided, within the present dental school budgets. Because of the urgent need for more teachers, CFDE continues to concentrate on recruiting faculty through dental teaching fellowships — fellowships designed to ease the financial burden of lost income, a heavily increased outlay of capital and other economic factors detri-

mental to encouraging the dentists to take graduate training.

CFDE contributions also serve to extend school budgets stretched almost beyond reasonable limits. In its continuing efforts on behalf of better dental education, CFDE will help assure that training opportunities will be available for the vastly increasing number of dental students expected in the next 25 years.

What about the next 25 years? At the moment, Canada ranks ninth in the number of dentists per person on a world-wide basis. In this we fall far behind other countries of similar economic background.

Canada's dental resources must be considered on a national scale, not from a regional viewpoint alone. There have been various proposals for boosting Canada's dentist-population ratio from the present level of one dentist for every 3,060 Canadians. Regardless of what the future may bring, the fact remains that

Dentist-population ratios in selected countries.

Country	Population per dentist
Denmark	1,400
Sweden	1,500
Norway	1,600
Germany	1,700
USA	1,900
Australia	2,500
New Zealand	2,500
France	3,000
Canada	3,100
United Kingdom	3,900
Italy	5,500
India	70,000
Nigeria	1,000,000

After Hunt, A.M. J. Canad. Dent. Ass. 32:464, 1966.

in 152 of 232 Canadian census districts there are more than 4,000 residents for every available dentist. And every one of these districts is represented by a politician — proof enough that dentistry and dental education must be viewed as a national responsibility.

With these problems in mind, CFDE has already invested or committed \$54,250 to help produce teachers across Canada and to improve our level of dental care. Since 1965 CFDE has awarded direct, unrestricted grants yearly to each dental school (\$500 to each in 1966). These help to bridge gaps not allowed for in tightened school budgets. End uses of these grants vary. The Université de Montréal reports the purchase of photographic equipment for a research microscope and the attendance of a representative at the Massachusetts Institute of Technology, Boston, for a postgraduate course on "Current Concepts in Growth and Development." The University of Toronto reported that money was used to sponsor the Conference on Education, May 9-11, 1966, and assist in the work of the Faculty's new curriculum review committee. At the University of Western Ontario money has been used for representative attendance in courses on oral pathology at the US Army Institute of Dental Research and oral diagnosis and therapeutics in Washington. The University of Manitoba allocated its grant to support the attendance of 15 junior staff members at the Canadian Dental Research Conference in Clear Lake during the fall of 1966.

Last year CFDE also allocated a grant of \$1,000 to the Association of Canadian Faculties of Dentistry to aid in the interchange of information and support.

In 1967, CFDE will award dental teaching fellowships to six future dentists to

help them pursue careers in teaching. That makes a total of 12 graduates who have received or will receive financial support to become dental teachers.

According to CFDE Chairman, Dr. J. D. McLean, dean of the Faculty of Dentistry, Dalhousie University, "the contributions made to dental education by fellowship recipients will be worth many times the amount invested in them."

Still in the fledgling stage, CFDE performs a role which, though small in terms of the total cost of dental education, is vitally important. Using a limited budget as effectively as possible, CFDE goes right to the heart of any educational system — its dispensers of knowledge. Through grants to dental teachers across Canada, CFDE helps to ensure the emergence of qualified instructors.

CFDE has a board of trustees representing both the dental profession and the dental industry across the country. They include Mr. C. E. Peirce, president of the Ash-Temple Company, Toronto, and CFDE vice-chairman, Dr. L. P. Lepine, Montreal; Dr. M. J. Lipkind, Calgary; and Dr. H. W. Reid, Toronto.

November is CFDE Month across Canada.

It's meant to remind you that the only limitation on CFDE aid is the total amount of contributions in a given year.

It's meant to remind you that dental education is a national problem, not regional.

It's meant to remind both members of the dental profession and the dental industry that they share a responsibility to the Canadian public — from Newfoundland to British Columbia — the same public who place their trust in you for dental care.

FCED: une responsabilité nationale

C'est en grande partie à vous, les lecteurs de cet article et à vos contemporains que le Fonds canadien pour l'enseignement dentaire doit son succès. C'est peut-être

parce que vous connaissez mieux que quiconque les difficultés que l'enseignement de la dentisterie a dû surmonter au cours des 10 dernières années. A moins

que l'on vous ait fait croire que les installations actuelles étaient suffisantes?

Il est vrai que la capacité des facultés dentaires canadiennes pour former les étudiants en dentisterie a augmenté de 83 pour cent entre 1956 et 1966. C'est une augmentation considérable si on la compare à celle de la décade précédente, 1946 à 1956, pendant laquelle la capacité combinée de toutes les facultés dentaires du Canada augmenta de moins de 6 pour cent. Cependant, même avec cette augmentation de capacité de 83 pour cent, la moitié des candidats qualifiés se virent refuser l'admission en 1966. Que feriez-vous aujourd'hui si on ne vous avait pas accepté en 19 — ?

Ni la profession dentaire, ni les associations, ni l'industrie dentaire, ni les différentes institutions d'enseignement peuvent être tenues responsables de cet état de chose. Mais il n'en reste pas moins que l'enseignement de la dentisterie ne va pas au devant des besoins du public.

C'est pour cela, entre autres raisons, que le Fonds canadien pour l'enseignement dentaire a été formé en 1962. Il fonctionne sur une base non commerciale et fournit un appui financier aux entreprises nécessaires qui ne sont pas prévues dans les budgets actuels des facultés dentaires. Le besoin urgent de professeurs plus nombreux se faisant sentir, le FCED continue à diriger ses efforts vers le recrutement de personnel enseignant au moyen de bourses d'études et de bourses destinées à compenser la perte de revenus, l'augmentation de l'investissement de capital et les autres facteurs qui empêchent les dentistes de suivre des cours postgradués.

Les contributions du FCED servent aussi à étendre des budgets scolaires taxés au-delà des limites raisonnables. Par ses efforts constants pour améliorer l'enseignement dentaire, le FCED permettra à des étudiants, en nombre toujours croissant dans les 25 prochaines années, d'étudier la dentisterie.

Que dire de ces 25 années à venir? Pour le moment, le Canada occupe la neuvième place dans le monde quant au nombre de dentistes par habitant, c'est-à-dire que nous en avons moins que les autres pays dont la situation économique est comparable à la nôtre.

Rapport population/dentistes dans certains pays.

Pays	Habitants par dentiste
Danemark	1,400
Suède	1,500
Norvège	1,600
Allemagne	1,700
Etats-Unis	1,900
Australie	2,500
Nouvelle-Zélande	2,500
France	3,000
Canada	3,100
Royaume-Uni	3,900
Italie	5,500
Inde	70,000
Niger	1,000,000

D'après Hunt, A.M. J. Canad. Dent. Ass. 32:464, 1966.

Les ressources dentaires du Canada doivent être considérées sur une base nationale et non du seul point de vue régional. On a fait différentes suggestions pour augmenter le rapport dentistes/population au Canada. La proportion actuelle est d'un dentiste pour 3,060 habitants. Quoi que l'avenir nous réserve, le fait est que dans 152 des 232 districts de recensement du Canada, il n'y a qu'un dentiste pour plus de 4,000 résidents. Et chacun de ces districts a un représentant au Parlement, ce qui démontre bien que la dentisterie et l'éducation dentaire doivent être considérées comme une responsabilité nationale.

C'est la conscience de ces problèmes qui a déjà poussé le FCED à investir ou à engager \$54,250 pour aider à former des professeurs dans tout le Canada et pour améliorer la qualité de nos soins dentaires. Depuis 1965, le FCED a accordé des subsides annuels, directs et sans restriction à toutes les facultés dentaires (\$500 à chacune en 1966). Cette somme les a aidées à combler les lacunes de leurs budgets serrés. L'emploi final de ces subsides varie. A l'Université de Montréal, il a servi à acheter de l'équipement photographique pour un microscope de recherche et à envoyer un représentant au Massachusetts Institute of Technology de Boston, à un cours postgradué sur "les concepts actuels de l'essor et du développement." L'Université de Toronto nous a fait savoir que le subside lui avait servi à commanditer la conférence sur l'éducation, du 9-11 mai 1966, et à aider dans son

travail le comité de révision du nouveau programme de la faculté. A l'Université de Western Ontario, l'argent a été utilisé pour envoyer un représentant aux cours de pathologie buccale du US Army Institute of Dental Research à Washington. L'Université du Manitoba a employé le subside pour envoyer 15 de ses chargés de cours à la conférence canadienne sur la recherche dentaire, à Clear Lake, en automne 1966.

L'année dernière le FCED a accordé un subside de \$1,000 à l'Association des facultés dentaires du Canada, à des fins d'échange de renseignements et de soutien mutuel.

En 1967, le FCED donnera des bourses d'enseignement à six futurs dentistes pour les aider à poursuivre leur carrière dans l'enseignement. Cela fait un total de 12 gradués qui ont reçu et recevront de l'aide financière pour devenir professeurs.

D'après le président du FCED, le Dr J. D. McLean, doyen de la Faculté dentaire de l'Université de Dalhousie, "les résultats obtenus grâce à l'allocation des bourses pour l'enseignement dentaire repaieront au centuple les sommes dépensées."

Encore à ses débuts, le FCED remplit un rôle d'une importance vitale, bien que réduit quant au coût total de l'éducation

dentaire. Avec un budget limité, qu'il utilise aussi judicieusement que possible, le FCED s'adresse directement au cœur même de tout système d'enseignement en s'occupant de ceux qui dispensent la connaissance. En accordant des subsides aux professeurs de dentisterie dans tout le Canada, le FCED aide à former des instructeurs qualifiés.

Le Conseil d'administration du FCED représente la profession dentaire et l'industrie dentaire de tout le pays. Son vice-président est M. C. E. Peirce, président de la compagnie Ash-Temple, de Toronto. Les autres membres sont le Dr L. P. Lepine, de Montréal, le Dr M. J. Lipkind, de Calgary et le Dr H. W. Reid, de Toronto.

Novembre sera le mois du FCED dans tout le Canada dans le but de vous rappeler que les seules limites à l'aide que peut apporter le FCED sont fixées par le montant des contributions dans une année donnée et aussi pour rappeler que l'éducation dentaire est un problème national et non régional.

Enfin pour donner aux membres de la profession dentaire et à ceux de l'industrie dentaire une plus grande conscience de leur responsabilité commune vis-à-vis du public canadien, de Terre-Neuve à la Colombie britannique, n'oublions pas que c'est ce public qui a recours à vous pour les soins dentaires dont il a besoin.

letters • courrier

Let us not show weakness by thinking so small about our financial problems.

W. G. Hastings, DDS,
2184 West Broadway, Vancouver 9, BC.

CDA Deficit Budgets

To the Editor:

I have now read two accounts of deficit budgeting for the Canadian Dental Association. The sum given in the most recent August editorial is \$2,570.00. It is beyond my comprehension in this day and age that the membership is not asked to contribute more per man making sure we have a budget surplus each year. Surely this is a simple straight forward solution which would not come in for any serious criticism.

No one can dispute the contribution of our Association over the years. We have gained much through its efforts on a personal basis.

Sydney Wood Bradley Memorial Library

To the Editor:

I received a copy of your July Journal yesterday, and I do appreciate your kindness in sending it to me. My husband was ill so long that I had forgotten many of the things mentioned in the write-ups, things that took place down through the years. I hope to see the library before long and I am only sorry that he did not see it finished. It was a labour of love with him, and not many of us live to see our dreams come true. Thank you for your thoughtful gesture as I treasure the Journal very much.

Mrs. Sydney W. Bradley,
235 Carling Ave., Ottawa, Ont.

Maxillary resection and its prosthetic replacement

G. A. Zarb,* BDS, MSc, DDS, Toronto, Ontario

The surgical anatomy of a maxillary resection is described. The osseous structures involved are identified, and the residual anatomic structures are correlated with replacement prostheses. The prosthetic rehabilitation of a resected maxilla is discussed.

■

Il s'agit de la description de l'anatomie chirurgicale de la resection d'un maxillaire. Les structures osseuses concernées sont identifiées et les structures anatomiques résiduelles sont réunies par des prothèses de remplacement. Il est discuté de la réhabilitation prothétique d'un maxillaire reséqué.

The objective of this article is to describe the anatomy of the resected maxilla and the method of its prosthetic replacement.

Radical surgical treatment of tumours of the maxilla is undertaken in an effort to obtain a better survival rate.¹⁻⁴ The prosthodontist is called upon to play a major role in patient rehabilitation following such tumour surgery.^{5,6} The success of the prosthesis will depend largely

on its relation to the various anatomic structures it replaces as well as supports. Familiarity with these structures is obviously essential. This study aims at (1) describing the surgical anatomy of a maxillary resection and identifying the osseous structures involved, (2) correlating the residual anatomic structures with the replacement prosthesis, and (3) discussing the method of prosthetic rehabilitation of a resected maxilla.

SURGICAL ANATOMY OF A MAXILLARY RESECTION AND THE OSSEOUS STRUCTURES INVOLVED

The resection^{1,3,4} was carried out on a cadaver head. The first step consisted of the exposure of the facial surface of the maxilla. It was accomplished by a skin incision as outlined in Figure 1. The upper lip was split in the midline to the columella. Next, an incision was made across the base of the nose into the nasolabial crease. This incision was extended around the ala and then superiorly along the maxillary crest to the infraorbital ridge. The incision then curved laterally on the lower eyelid and followed a line just below the border of the lid out to the zygomatic bone.



FIGURE 1 Skin incision for a maxillary resection outlined on a cadaver head.

The gingivolabial fold was next incised at the superior aspect of the lip-splitting incision. The incision was extended posteriorly to the posterior border of the maxilla. The outlined skin flap was reflected from the tarsal plate superiorly and the infraorbital margin was exposed. The nasal cavity was entered along the margins of the maxillary crest. The flap was next reflected from the anterior surface of the maxilla (Figure 2) to which

the periosteum was left attached. Although an extensive incision, surgeons find it necessary so as to expose the maxilla maximally.

The second step consisted of a mobilization of the maxilla by freeing it from its bony and soft tissue attachments. The zygomatic arch was exposed and the orbital periosteum elevated. A perforation was made through the lateral wall of the orbit just beneath the attachment of the zygomatic arch. This attachment was transected with a saw (Figure 3A). *In vivo*, if the tumour does not involve the roof of the maxillary antrum, the orbital floor and margin are preserved. The zygoma is cut horizontally about one-half inch below the orbital margin and vertically just lateral to the maxilla. The nasal-ethmoid-orbital attachment was next severed with a chisel directed posteriorly to cut the maxilla from the ethmoid (Figure 3B). The landmark for this cut was the superior rim of the lachrymal fossa.³ The intranasal line of section was just above the middle turbinate and anterior ethmoid cells, and just below the cribriform plate.

Before the hard palate was sectioned, the mucus membrane was incised, the incision commencing at the posterior aspect of the gingivolabial incision and extending through the soft palate to the midline, at the junction of the soft and hard palates. Whenever circumstances permit, a rim of soft palate is preserved *in vivo*. This will facilitate the eventual construc-



FIGURE 2 Reflection of skin flap from the anterior surface of the maxilla showing the underlying bone and periosteum.

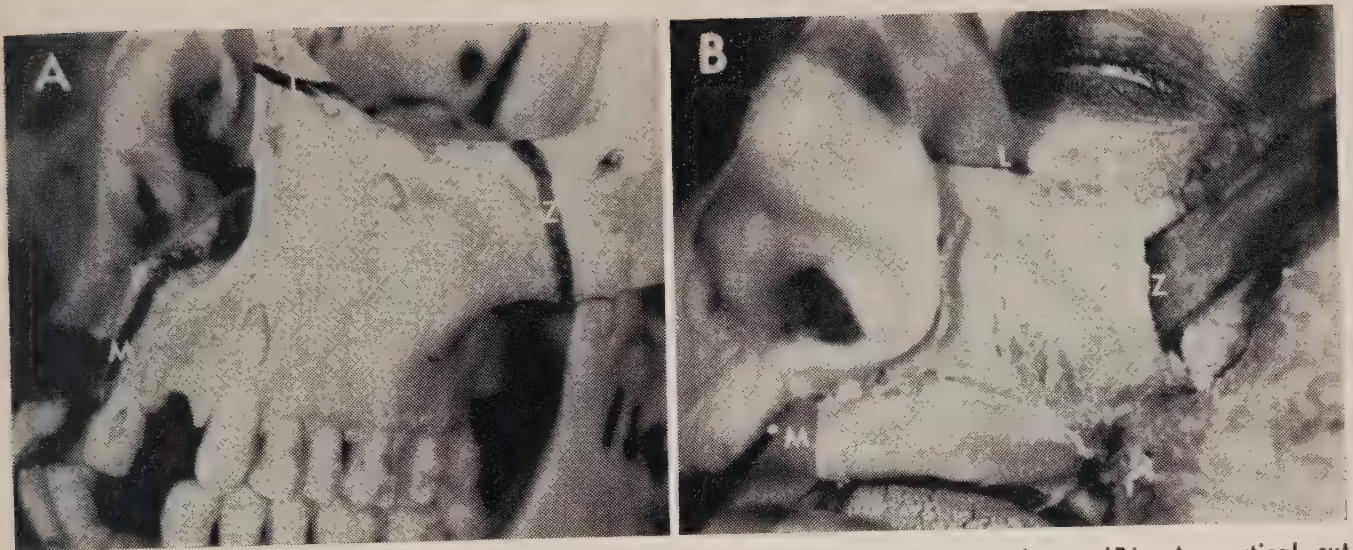


FIGURE 3 Landmarks for a maxillary resection on a skull (A) and a cadaver (B). A, vertical cut through the zygomatic arch; B, horizontal cut at the superior rim of the lachrymal fossa; C, vertical cut in the maxillary midline.

tion of a watertight prosthesis. The bony palate was split in the midline (Figure 4) and the posterior inferior attachment of the pterygoid plates was severed (Figure 5). Next, the muscle fibres of the masseter and internal pterygoid muscles and the reflection of the orbital periosteum from the superior maxillary surface were severed. The maxilla was grasped with forceps and rocked out of position. Figure 6 represents a bony maxilla approximating the excised bony area.

In vivo, the whole field of operation is next carefully examined. Various possibilities of tumour extension exist.¹ These are as follows: the orbit; the ethmoidal, sphenoidal, and frontal sinuses; the skin; the pterygoid muscles; and the temporomandibular joint region. Since the interior of the skin flap and the muscle bed of the maxilla are denuded, a split thickness skin graft is sutured in place covering all denuded areas (Figure 7). Petroleum jelly gauze is packed into the cavity and the initial skin lesion is approximated.

The use of skin grafts is considered one of the most important recent advances in radical surgery of the maxilla.⁷ These grafts thrive equally well on the cheek flap, the muscle bed, the bare bone, the dura, or cerebral cortex. Their use simplifies postoperative packing of the cavity by making the area less tender. Also, the cosmetic result is improved. If

a skin graft is omitted, shrivelling or scarring over the surgical area may be conspicuous.⁴

CORRELATION OF THE RESIDUAL ANATOMIC STRUCTURES WITH THE REPLACEMENT PROSTHESIS

A maxillary resection results in a continuity of at least the nasal and maxillary sinus cavities on the resected side. This anatomic defect is bounded as follows (Figures 8 and 9): medially by the nasal septum; posteriorly by a vertical plane through the anterior border of the residual soft palate; laterally and anteriorly by the inside of the cheek with its skin graft lining; superiorly by the floor of the orbit and the cribriform plate (if the ethmoid labyrinth is exenterated); inferiorly (Figures 10 and 13) by a horizontal plane extending from the residual hard and soft palates to the fibrous contraction band which forms in the region of the top of the sulcus on the resected side.⁸ The inferior boundary separates the oral cavity from the surgical cavity, as well as the obturator and oral parts of the replacement prosthesis. The obturator portion is made up of a suprapalatal extension and an antero-lateral or maxillary extension (Figure 11). That portion of the prosthesis which supports the cheek on the resected side is called the



FIGURE 4 Mobilization of the maxilla. The palate is incised and split in the midline. Cadaver head (A) and bony skull (B).

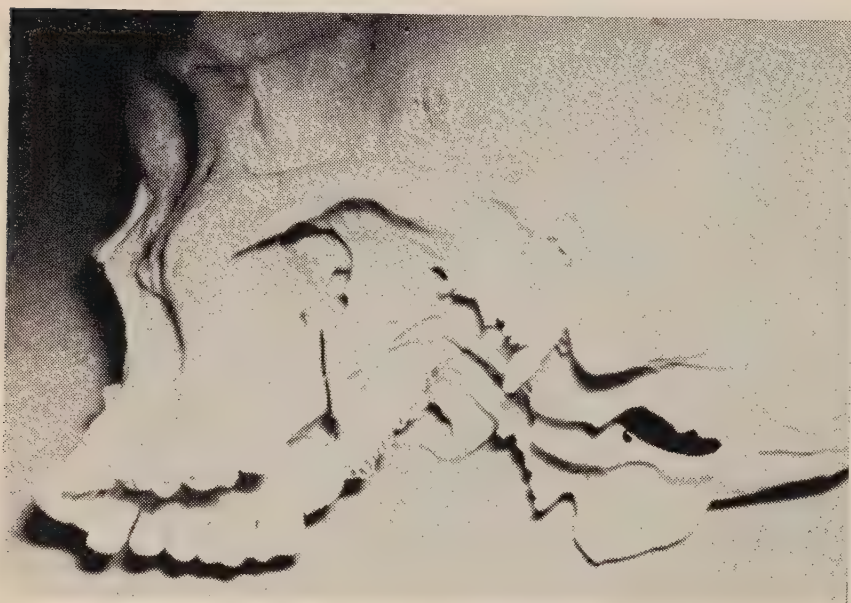


Figure 5 Mobilization of the maxilla. The postero-inferior line of section is in the region of the pterygoid plates.

vestibular portion (Figures 11 and 12). It consists of a shield-like arch which occupies what used to be the labial and buccal vestibule on the resected side. The obturator and oral part of the prosthesis are separated by a groove which is caused by the fibrous contraction band and the anterior border of the soft palate (Figure 11).

Detachment of the pterygoid hamulus almost inevitably occurs in a maxillary resection. This can affect three muscles which are intimately associated with the hamulus and its attached raphe: the tensor veli palatini, the buccinator, and the superior pharyngeal constrictor muscles (Figure 15). The tensor veli palatini passes

downward from the base of the skull and continues into a strong tendon just above the level of the pterygoid hamulus. The tendon then winds around the hamulus and bends sharply from a vertical into a horizontal plane.⁹ The pterygomandibular raphe is a tendinous band stretching from the tip of the pterygoid hamulus to the retromolar triangle pad of the mandible. Parts of the superior pharyngeal constrictor muscle arise from the tip of the hamulus and from the raphe. Anteriorly, fibres of the buccinator muscle arise from the raphe. All three muscles tend to cause a lingual collapse of the inferior postero-lateral corner of the resected area (Figure 10). Marked contraction



FIGURE 6 A maxilla approximating the excised bone.

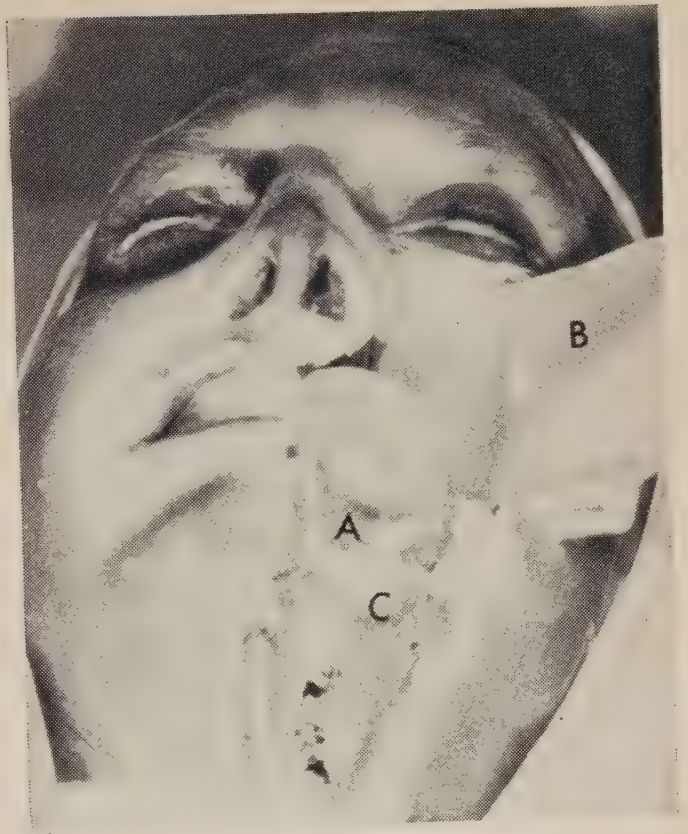


FIGURE 7 An acrylic resin prosthesis in place. A, the reflected skin flap is lined with a simulated skin graft, (B). C, the soft palate.

of the cheek may be caused by the loss of its bony support (Figure 14).

PROSTHETIC REHABILITATION OF A RESECTED MAXILLA

The immediate postoperative days are difficult ones for the patient who has undergone a maxillary resection. He is acutely aware of his unintelligible speech and altered eating habits. Moreover, contraction of the operative site occurs dramatically with resultant collapse of the soft tissues over the resected jaw. The prosthodontist's responsibility in caring for such patients is divided into three stages: (1) the immediate temporary obturator stage; (2) the permanent obturator stage; (3) the maintenance phase of the patient's prosthetic treatment.

Immediate Temporary Obturator Stage.—The advantages of an immediate temporary obturator are the preservation of normal speech and eating habits. Prevention of collapse of the soft tissues on the affected side may also be accomplished. Facial symmetry will then be preserved, and the

construction and retention of the permanent prosthesis will be facilitated. Above all, the mental well-being of the patient is boosted considerably.

Retention of the immediate temporary obturator in the edentulous patient is not always possible. Miglani and Drane¹⁰ consider the presence of teeth on the unoperated side a prerequisite for an immediate obturator. They fabricate a temporary obturator in edentulous cases about 10 days postoperatively. Lingerman¹¹ recommends wire attachment of the immediate obturator to the zygomatic arches on either side. James¹ uses a sponge prosthesis approximately 10 days after the operation. The sponge is removed by the patient and cleaned after each meal. Both Steadman⁸ and Hammond¹² use gutta percha on the deficient side of the immediate obturator to maintain cheek contour and obtain retention (Figure 11). The gutta percha becomes dirty, however, and has to be replaced. It also makes the obturator rather heavy.

Robinson⁶ places an 18 gauge wire loop on the defective side of the obturator. He obtains retention by suturing the loop to facial musculature and skin. If the orbital contents are exenterated, he ex-

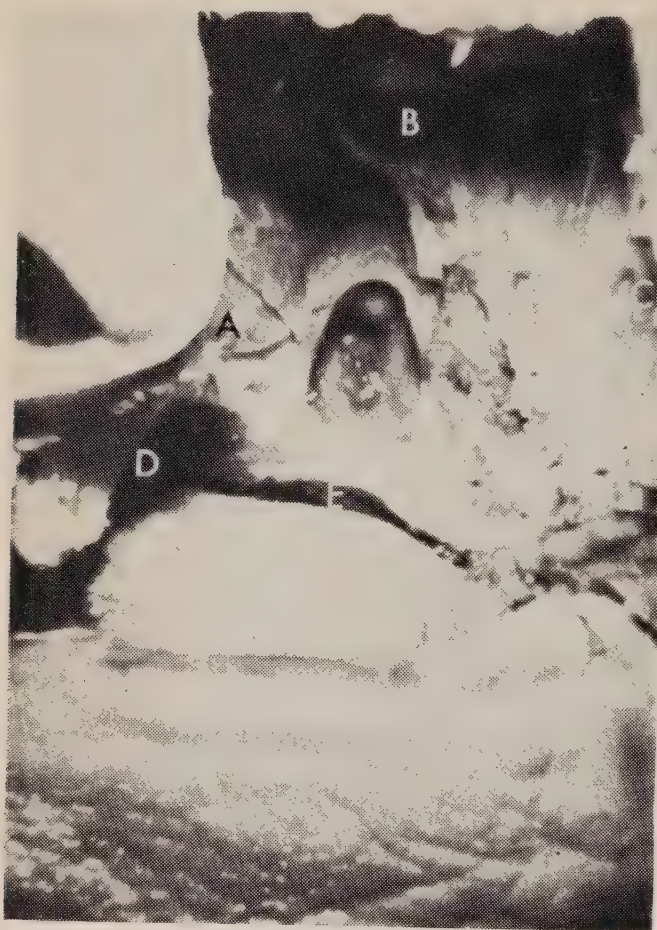


FIGURE 8 Boundaries of the anatomic defect following a maxillary resection. A, nasal septum; B, orbital floor; C, inside of cheek muscle bed; D, residual hard palate; E, residual soft palate.

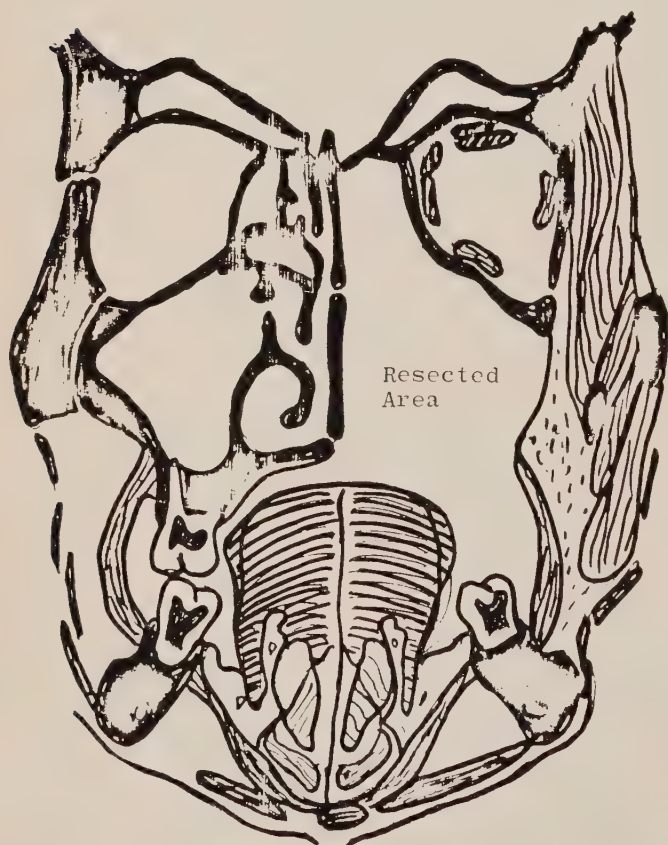


FIGURE 9 Frontal section in the mouth and nose region of a resected maxilla.

tends the suture material up through the orbital opening and seals it to the forehead with adhesive tape.

An immediate temporary obturator is almost always indicated as well as feasible in a maxillary resection. When a good rapport exists between the prosthodontist and his surgical colleague, the latter may ask what steps he should take to facilitate the treatment and prosthetic work. Diagnostic casts enable the surgeon to outline the proposed area of resection adequately (Figure 15). An acrylic resin denture base having the same periphery as an ordinary denture is constructed, or else the patient's own denture may be used. The area to be resected is outlined on the denture base and filled in with autopolymerizing (cold-curing) resin. Immediately after the surgeon has completed the resection and the skin graft is in place, the obturator with a resilient denture material added to it is inserted into the anaesthetized patient's mouth. When the soft liner material has set, the prosthesis is removed. Areas of hard acrylic resin showing through the liner are relieved and excess material is trimmed.

Temporary obturation with a resilient material which can be easily added to is important because of the minimal pressure exerted by the obturator. The resilient liner not only protects the healing tissues, but may help retain the prosthesis by engaging and springing over undercuts which are present. Wrought clasps should be included in the fabrication of an immediate temporary obturator for dentulous patients (Figure 11).

Instructions are given that the obturator must not be removed from the patient's mouth except in an emergency. The prosthesis may be removed 24 to 48 hours after the operation, washed, and if necessary adjusted. The patient is shown how to remove and insert the prosthesis since it must be cleaned thoroughly after meals. The patient is also impressed not to remove the obturator for any long period of time. Wound contraction during the early healing stage is so rapid that reinsertion may be rendered difficult or impossible.

The prosthodontist should not be in too great a hurry to provide teeth for the obturator. The soreness following radio-



FIGURE 10 Inferior boundary of resected area as seen in an edentulous patient. A, residual hard palate; B, residual soft palate; C, fibrous contraction band at the top of the buccal sulcus.

therapy usually prevents wearing anything more elaborate than the simplest appliance. At this stage, the mucous membrane seems to be particularly fragile and subject to ulceration by dentures. Edentulous patients manage to use their lower dentures very efficiently against a simple obturator.

Permanent Obturator Stage.—A permanent obturator may be made after the cavity is thoroughly healed. The time element varies with individual patients, but is approximately six to eight weeks^{1,13} postoperatively. The aim of the prosthodontist is not to completely replace the lost part of the jaw.¹⁴ The permanent obturator preserves the function of speech, deglutition and soft tissue support already

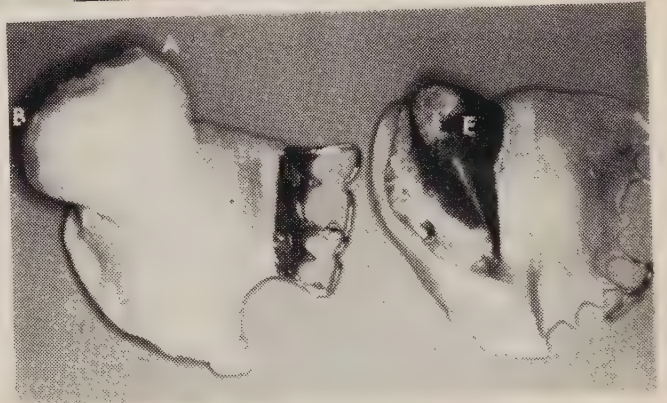


FIGURE 11 Left, a permanent prosthesis with a Silastic obturator and a cast framework. A, suprapalatal extension; B, maxillary extension; C, vestibular arch; D, groove in prosthesis caused by the fibrous contraction band. Right, an immediate temporary obturator with wrought wire clasps and a compound obturator extension (E).



FIGURE 12 A temporary obturator in the mouth showing the vestibular arch (O) part of the prosthesis.

accomplished by the immediate temporary obturator.

The techniques used are routine clinical prosthetic ones. Meticulous attention must be paid to all the stages carried out in the fabrication of the permanent prosthesis. A perforated acrylic resin custom tray is made from the patient's diagnostic cast, or from an alginate (irreversible hydrocolloid) impression made in an altered stock tray (Figure 16). The custom tray is placed in the patient's mouth and adjusted by relieving overextended borders or by adding green stick compound to underextended borders. The surgical cavity is packed with gauze saturated with petroleum jelly except for undercut areas which are to be included in the final prosthesis for retentive purposes. Dental tape is tied to the gauze to prevent its dislodgment into the back of the throat (Figure 17). Alginate is the preferred

impression material since it is so clean and easy to handle. A cake decorating syringe can be used to inject alginate into the cavity prior to carrying the alginate-filled tray into the mouth. If the alginate tears during withdrawal of the impression, the alginate pieces can be reassembled with pins and a stone cast poured. The impression (Figure 18) is examined for pressure areas which can be detected wherever the tray shows through the alginate. If present, another impression should be made.

The occlusal relations are registered on acrylic resin trial denture bases with wax occlusion rims. The trial denture bases may be adequately retained by using a soft liner material to engage the undercuts on the stone cast. If the patient is dentulous, the cast framework is used to retain the occlusion rim and trial denture base. The maximum number of teeth



FIGURE 13 Anterior aspect of the inferior boundary of the resected region in a dentulous patient. A, residual hard palate; B, fibrous contraction band at the top of the labial sulcus.

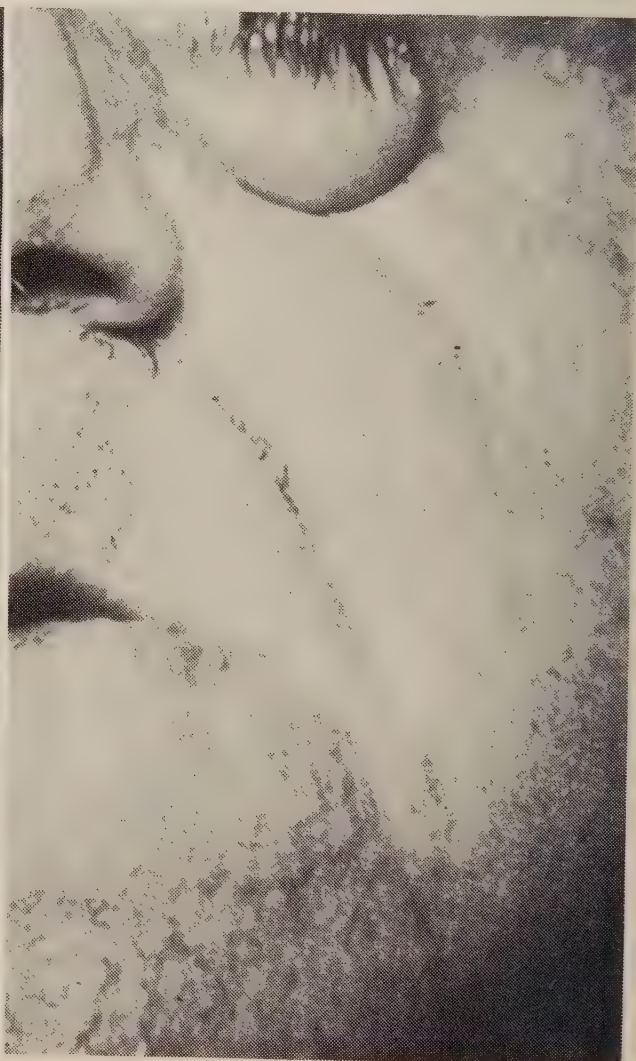


FIGURE 14 Marked contraction of the cheek resulting from lack of support of the soft tissues on the resected side.



FIGURE 15 A pre-operative diagnostic cast with the surgeon's outline of the extent of the proposed resection.



FIGURE 18 An alginate impression made after a maxilla was resected. Note the suprapalatal extension.

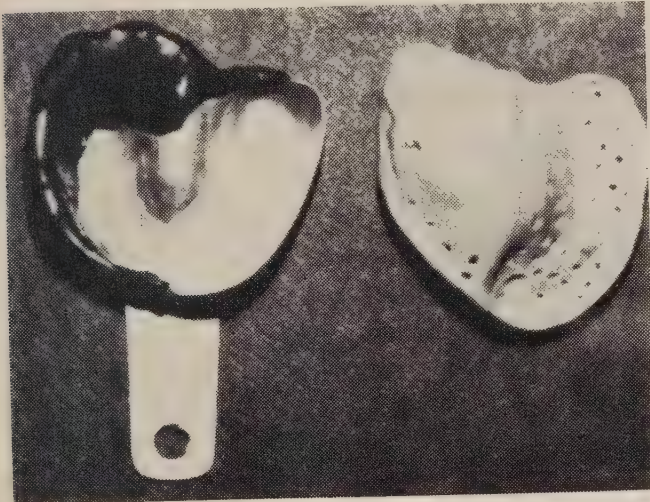


FIGURE 16 A stock impression tray altered with compound for making a preliminary impression, and a custom made perforated resin tray.

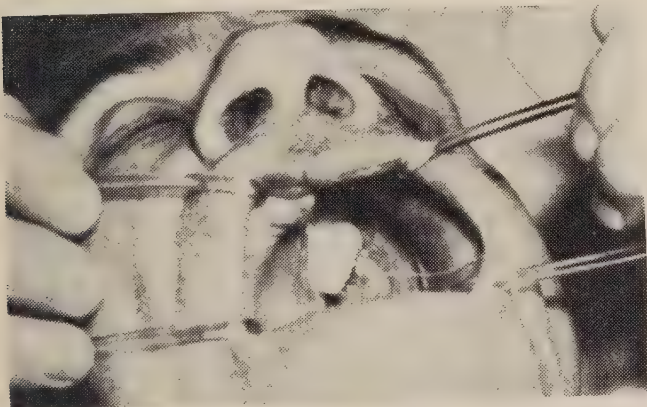


FIGURE 17 The surgical cavity is packed with taped gauze saturated with petroleum jelly prior to the impression making.

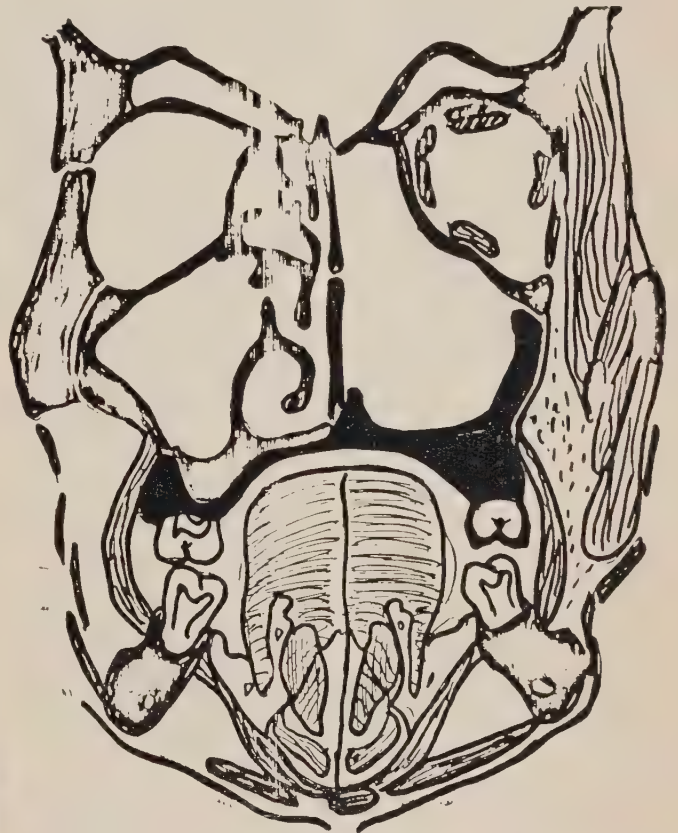


FIGURE 19 Diagram of a frontal section of an obturator in position.

should be incorporated into the partial denture framework design to achieve maximal stability. The casts are mounted on an adjustable articulator by means of a face-bow. Waxing up and processing

of the denture is then carried out in the usual manner.

The weight of large obturators can be reduced if they are made hollow.^{5,15} This can be done by constructing the prosthesis in two sections and then joining the two parts with autopolymerizing acrylic resin. Coffin¹⁶ prefers a hollow obturator that is open at the top for efficient cleaning.

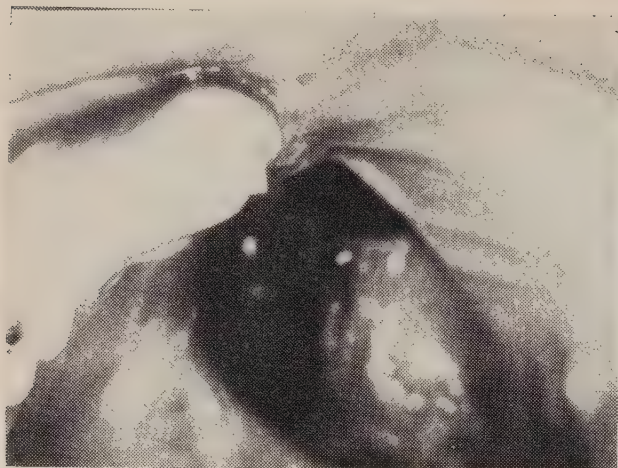


FIGURE 20 Intra-oral view after resection of a maxilla in a 22 year old man.

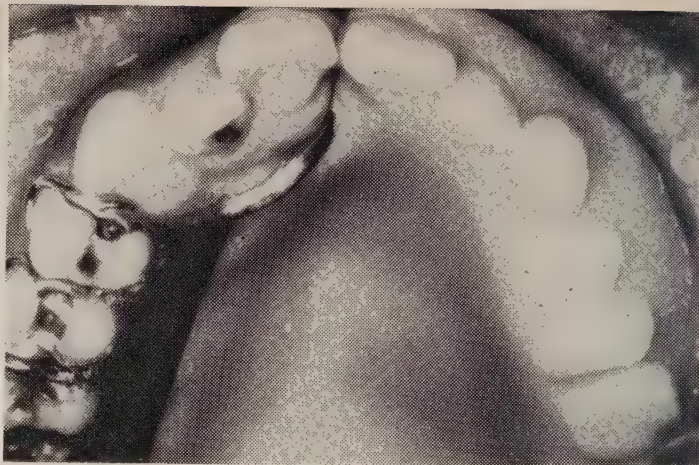


FIGURE 21 The prosthesis in place.

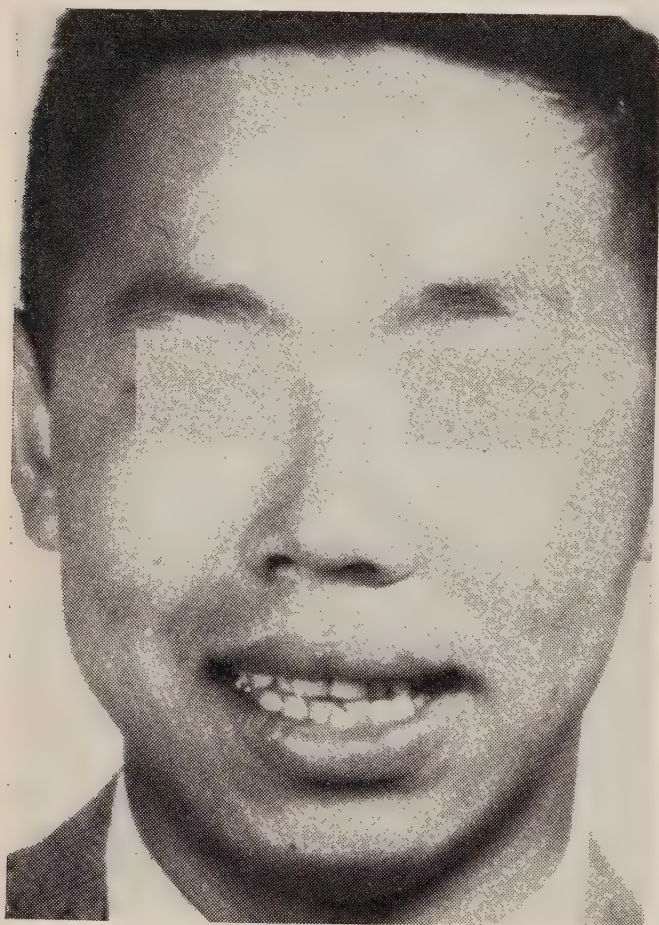


FIGURE 22 Three year postoperative cosmetic result. The patient wore an immediate temporary obturator followed by a permanent prosthesis.

The final prosthesis should fit precisely as high up in the defect as possible anteriorly and laterally to support the side of the face (Figure 19). The medial wall of the prosthesis along the midline of the palate need only be as high as the hard palate is thick; anything higher will not abut onto anything, and consequently it would serve no useful purpose. The obturator is inserted on edge and rotated

into position to make full use of the undercut lateral wall. The patient must learn to insert and remove the prosthesis before being dismissed. Those appliances inserted in a vertical direction will have poor retention. If this is necessary because of the presence of undercuts on the intact tissue side, a resilient material should be used to engage one or more of these undercut areas. Silastic 390 (Dow Corning, Midland, Michigan) is admirably suited for this purpose^{17,18} and affords maximal retention without irritation or trauma to the soft tissue. Recently, several dentures with fungal growth on Silastic liners have been reported.¹⁹⁻²¹ Such growths could very well render doubtful the use of Silastic in patients whose oral flora harbour the yeast-like moulds responsible for the changes in the surface texture of the material.

Figures 20 to 22 demonstrate the prosthetic rehabilitation of a dentulous 22 year old man who underwent a maxillary resection for a muco-epidermal carcinoma of the palate. The excellent facial contour preserved by the wearing of immediate temporary and permanent prostheses is evident from the two year postoperative photograph.

Maintenance Phase of a Permanent Obturator.—Periodic recall of patients wearing obturators is necessary to ensure the patients' continued comfort and optimal health of oral tissues. Moreover, the easy removal of the prosthesis allows for the prosthodontist's unobtrusive watch of the operated area which is so easily accessible.

Since the dimensions of the surgical cavity continue to change for a prolonged period of time, the posterior edge of the prosthesis may no longer provide a satisfactory seal. The patient will complain of unsatisfactory retention of the prosthesis and/or of the passing of fluids into the nasal cavity and through the nostrils. When fluids are swallowed, the tongue forces them against the palate and over the posterior part of the denture. The fluids then run forward and escape through the nose, especially when the head is tipped forward.

A localized relined of the obturator will adequately recover the posterior seal. This part of the denture is ground slightly, green stick compound is applied, and functional muscle movements of the soft palate are carried out until the seal is complete. The contact area in the compound is scraped to a depth of 0.5 to 1 mm., and a zinc oxide-eugenol impression paste is added to the cut surface. Functional movements are carried out again, and a partial cast is poured up to this localized impression in the prosthesis. The compound and impression paste are removed, and autopolymerizing acrylic resin is packed into the deficiency. The fresh resin is processed under air pressure to avoid porosity. Alternately, a functional impression material may be used. This material should flow and should not rebound.²² Coe-comfort (Coe Laboratories, Chicago) has this property provided the impression is removed from the mouth within a few hours. If left in the mouth for a few days, the cast should be poured up immediately after the impression is removed because of the rapid recovery of this material.

Occasionally this procedure still fails to solve the patient's complaint of nasal drip accompanying the swallowing of liquids. A hole can be drilled into the postero-medial side of the obturator to an area just above the cuspid or first bicuspid. If the obturator is a hollow one, a resin tube can be fitted accurately through the holes and retained with autopolymerizing resin. The fluids will pass into the tube upon entering the back of the nasal cavity, and return to the mouth at the labial opening.

SUMMARY

The surgical anatomy of a maxillary resection is described. The osseous structures involved are identified, and the residual anatomic structures correlated with replacement prostheses. The prosthetic rehabilitation of a resected maxilla is discussed.

This article, based on work performed by the author at the College of Dentistry, Ohio State University, Columbus, Ohio, is published concurrently in the *Journal of Prosthetic Dentistry* and in the *Journal of the Canadian Dental Association* by arrangement between the editors.

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Improved silicate restorations

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Although basically a poor restorative material, silicate cement may be improved by proper handling on the part of the operator. Rubber dam, conservative cavity preparation, proper contouring and wedging of the matrix, mixing and placing the materials according to manufacturers' instructions and finishing and polishing with linen finishing strips all contribute to better, more aesthetic and longer lasting silicate restorations.

■

Les qualités du silicate, qui est fondamentalement un mauvais matériau de restauration, peuvent être améliorées si l'opérateur sait comment s'en servir. L'emploi de la digue, la préparation d'une cavité aussi petite que possible, le façonnement et le placement de la matrice, le malaxage et la mise en place des matériaux conformément aux instructions des fabricants, la finition et le polissage avec des bandes sablées, tout cela contribue à des restaurations au silicate mieux faites, plus esthétiques et plus durables.

silicate restorations are likewise attributable to faulty technique. Silicate cement is a delicate material. Improper handling causes it to commence disintegration immediately. Nevertheless, if handled properly it serves a very useful purpose in dentistry. The purpose of this paper is to review some of the common errors encountered in placing silicate restorations, and to suggest a few methods of improving the finished product.

ADVANTAGES AND DISADVANTAGES

The advantages of a silicate cement are natural appearance and translucency, ease of insertion and shaping to the contour of the tooth, economy of the material and short operating time, the cariostatic properties of its fluoride content, and its low coefficient of thermal expansion.²

The main disadvantages are its solubility in the oral fluids and lack of compressive strength. The acid and the fluoride content of the silicate also has a toxic effect upon the pulp.

Most patients prefer to have their anterior teeth filled with a lifelike material that matches the tooth substance. Three materials approach this requirement: silicate cement, acrylic resin and baked porcelain. Due to the difficulty dentists encounter in making a baked porcelain inlay most turn to acrylic resin or silicate cement. Acrylic resin has an extremely high thermal coefficient of expansion.

Silver amalgam is the most widely used restorative dental material. Silicate cement runs a close second. About 96 per cent of amalgam failures are due to faults that could be controlled by the dentist; only 4 per cent are the fault of the material.¹ Presumably most failures with

Many dentists therefore prefer silicate restorations.

The lack of compressive strength of the material dictates that it should be used only in areas not subject to stress. This limits the use of silicate restorations to small Class III and Class V cavities in anterior teeth. Some dentists use this material in more extensive restorations such as a Class IV cavity. However, silicate cement will not withstand the forces exerted on this type of restoration.

RUBBER DAM

Rubber dam is essential for silicate restorations. It is impossible to keep a tooth completely dry by means of cotton rolls because moisture seeps from the gingival tissue by osmotic pressures. Even a small amount of moisture along a margin can alter the water content of the silicate liquid resulting in a poor restoration.

CAVITY PREPARATION

Far too many dentists open the cavity with a large round bur from the labial aspect (Figure 1A), needlessly sacrificing tooth structure and future aesthetics. The resulting restoration looks good immediately after placement, but its appearance six months later is something else. If the patient is then dissatisfied, the dentist tends to blame the material (Figure 1B).

There need be no concern with extension for prevention in preparing a Class III cavity for a silicate restoration.^{2,3} If initial decay is involved, most of the cavity preparation can be done from the lingual aspect with a No. 700 cross cut bur. The lingual outline form should be as narrow mesiodistally as the bur will permit. The preparation should be as conservative as possible unless extension of decay dictates otherwise. The cavity outline should exclude the contact area in the incisal region and should not go beneath the gingiva. Labially, the outline is extended as far as necessary to the edge of well supported enamel. The same No. 700 bur is used to make retentive grooved undercuts at the gingivo-axial and incisal-

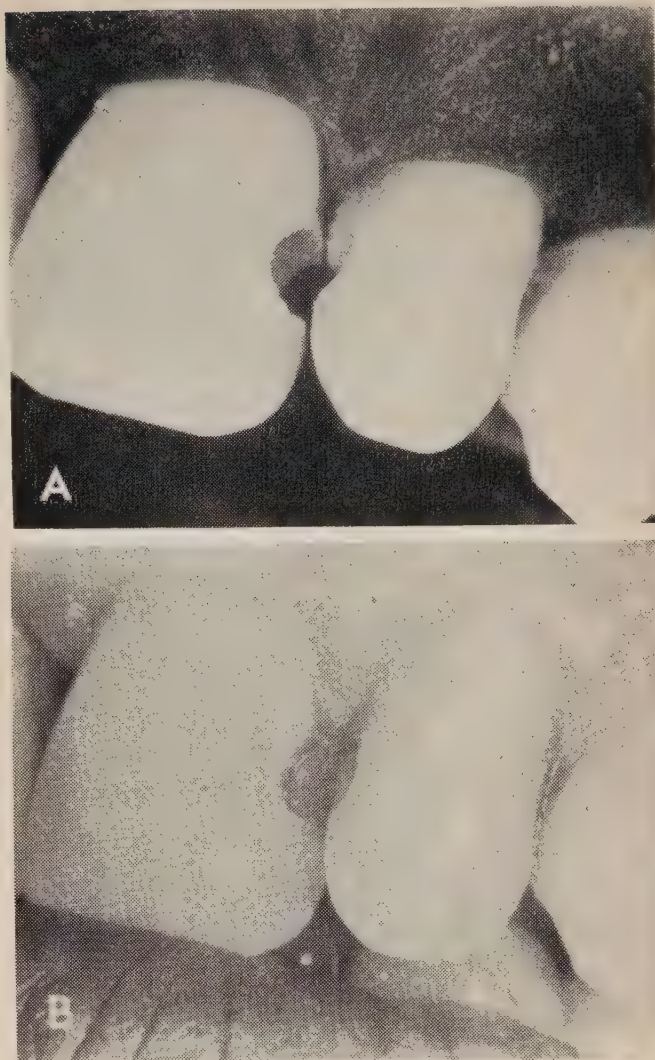


FIGURE 1 A, cavity prepared from the labial aspect with a round bur. B, poor aesthetic result.

axial line angles (Figure 2). Decay, if any still remains, is removed with a small spoon excavator or with the largest round bur that will conveniently enter the cavity. The cavo-surface margin is then planed with an angle former or margin trimmer, taking care not to bevel the margin other than to remove loose enamel rods.

If caries is extensive, it is an easy matter to vary this cavity preparation. Again, the cavity should not be enlarged beyond the dimensions necessary to remove the decay. When this has been done the axial wall can be replaced with zinc phosphate cement. It is sometimes necessary to remove all the dentine from under a portion of the labial enamel plate. It is not necessary to remove this enamel plate provided the incisal enamel is sound. If decay in the incisal region is sufficiently extensive it may be safer to make a dovetail on the lingual surface rather

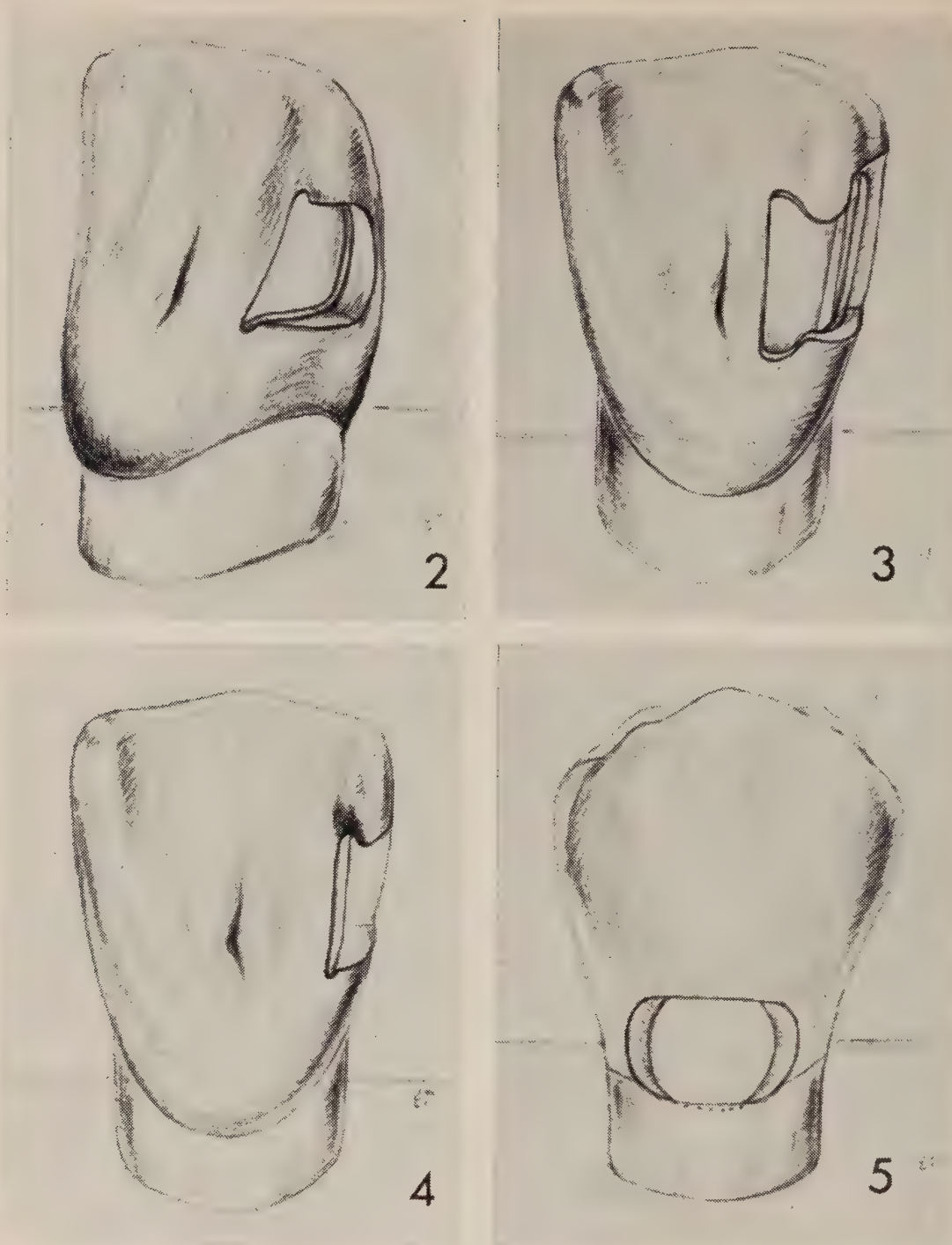


FIGURE 2 Conservative cavity preparation for a silicate restoration.
 FIGURE 3 Dovetail type cavity preparation for a silicate restoration.
 FIGURE 4 Decay is often left at the axio-incisal angle.
 FIGURE 5 Class V cavity preparation for a silicate restoration.

than undercut the incisal aspect for retention (Figure 3).

RECURRENT DECAY

Recurrent decay is seldom seen under a silicate restoration. When decay does occur, it is found generally in the dentine on the incisal aspect of the cavity. In most instances this is not recurrent

decay but an extension of caries left in the cavity when the previous restoration was placed (Figure 4). Unless one is extremely careful a small amount of decay can easily be left behind at the dentine-enamel junction in the incisal region of the cavity. The cavity must be extended incisally to eliminate this decay.

Silicate cement is a poor restorative material for Class V cavities. It tends to irritate the gingival tissue. Nevertheless,

many dentists use it in this area. The preparation, like that for a Class III cavity, is made as conservative as possible. The outline is similar to that of a Class V gold foil preparation except for rounded proximo-occlusal and proximo-gingival line angles. The gingivo-axial and occluso-axial line angles are undercut slightly for retention (Figure 5).

BASES

Because of its irritating qualities it is important to line silicate cement with a base, a varnish or both. A calcium hydroxide paste makes an excellent base for silicate cement.^{4,5} If varnish is used, it should be removed from the enamel. Fluoride flux in silicate cement causes a hardening of the enamel;⁶ varnish left on the enamel reduces the effectiveness of the fluoride by approximately 50 per cent.

MIXING

Silicate cement is made by mixing a powder and a liquid. The powder consists mainly of acid soluble glass to which is added certain fluxes.⁶ The powder is quite stable. The liquid is an aqueous solution of phosphoric acid. The water content of the liquid is critical. The liquid may take up or lose water (depending upon the humidity of the air) if the stopper is left

off the bottle. It is wise to discard the last one-fifth of the liquid in a bottle. If the water content of the liquid is altered, any or all of the following may occur: changed setting time, reduced compressive strength, increased solubility in mouth fluids, increased shrinkage, and greater susceptibility to discoloration. The manufacturer's directions should be carefully followed when mixing a cement. These are generally the same for the more popular brands of silicate. The following directions are usually given:

1. Use a large smooth glass slab having no scratches. Cool the slab to 70°F or slightly below. Care should be taken not to cool beyond the dew-point; otherwise moisture will collect on the slab.

2. Dispense a minimum of two drops of liquid on the slab.

3. Some manufacturers recommend measuring an exact amount of powder. The amount of powder required for a given quantity of liquid may vary according to slab temperature and atmospheric conditions. It is therefore recommended that a small excess amount of powder be placed on the slab. Until one becomes proficient at mixing silicate cement, it is recommended that the powder be measured.

4. Start the mix immediately after dispensing the materials as the water content of the liquid may change considerably if left exposed to the air.

5. Use a broad heavy spatula of plastic, agate or stainless steel for mixing.

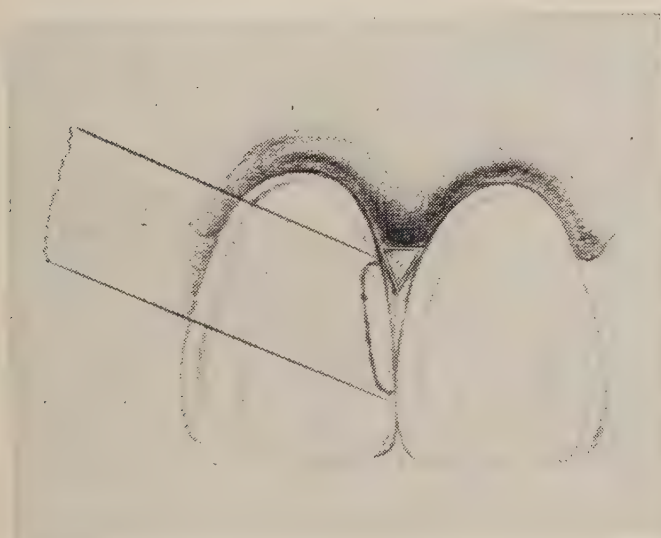


FIGURE 6 Matrix properly contoured and wedged (labial aspect).

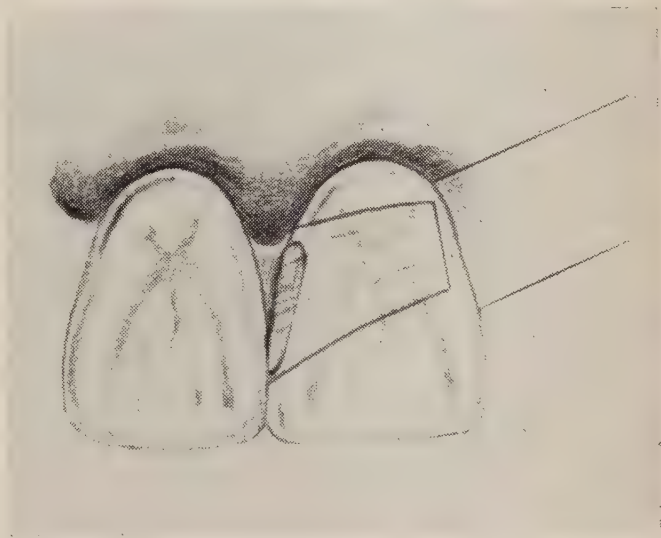


FIGURE 7 Matrix properly contoured, wedged, and trimmed (lingual aspect).

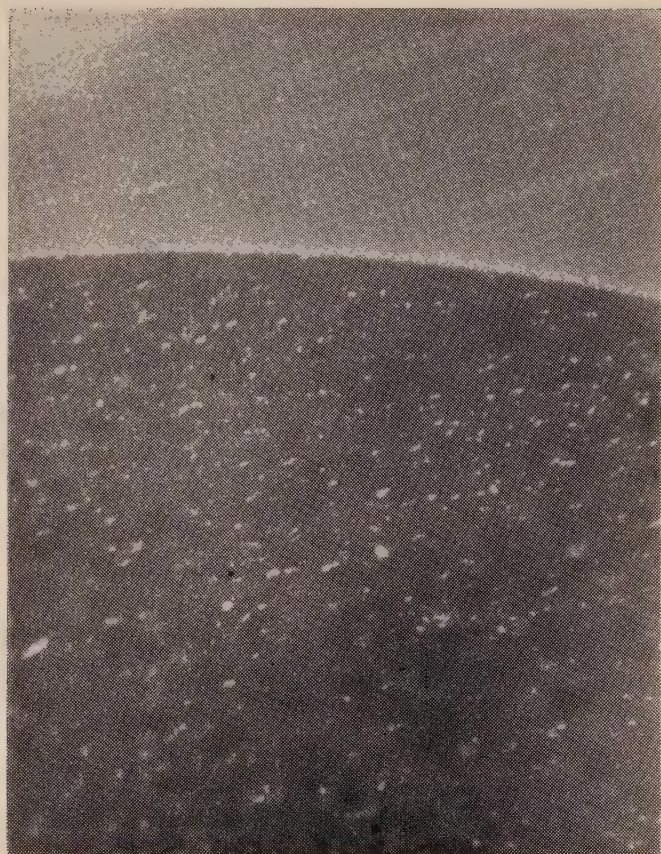


FIGURE 8 Photomicrograph of silicate restoration finished with medium cuttle linen finishing strips, x 100.



FIGURE 9 Photomicrograph of silicate restoration finished with flour of pumice. There is considerably more roughness and pitting of the surface and margin of the silicate restoration when pumice is used, x 100.

The purpose of mixing is to try to wet the outer surface of each powder particle. As soon as mixing commences, the outer surface of the powder particles is dissolved and silicic acid is formed. This silicic acid forms a gel which creates a bonding matrix between the undissolved particles. Once the silicic acid starts to set, the less the material is disturbed the less apt is the gel to be broken and a more favourable mix results. It is therefore very important that mixing be done rapidly.

Mixing proceeds by scooping the majority of the required powder into the liquid and spatulating with short rapid strokes. Powder is added in decreasing amounts until the proper consistency is reached. The exact consistency of the mix will depend upon the brand of silicate cement used. Most of the popular brands require that powder be incorporated into the liquid until it attains the consistency of a heavy dough. The liquid sheen should have just disappeared from the mass. The mix should not appear grainy.

For those who are learning to mix silicate cement, it is recommended that the measured quantities of powder be divided into halves, quarters and eighths—the half to be added first, then the quarter, then the eighth and, if necessary, the other eighth. This method is not necessary for the experienced dentist but it is wise to teach it to the dental assistant.

MATRIX AND INSERTION

When mixing is completed there should be no delay in introducing the material into the cavity. Using a Tarno plastic filling instrument the silicate material is packed well into the cavity. Any excess is trimmed off until there is barely enough material to cover the margins. The celluloid matrix strip is pulled tight and held securely. It should take not more than 1½ minutes to mix and place the silicate cement. The strips must be held immobile for three minutes. It is therefore advisable to fill no more than one cavity at a time.

A matrix must always be used when placing a silicate restoration. It aids in the rapid placement of the material and

minimizes disturbing the gel with instruments. It helps to produce tight margins and proper contour and reduces the excess to be removed after the material has hardened.

The best silicate restoration is one which requires no finishing after the matrix is removed. The best silicate surface is the one left on the restoration by the matrix.^{3,5} The objective is to have as little excess as possible, yet cover all margins adequately. This can best be done with a properly contoured and wedged celluloid matrix strip (Figure 6). It is not necessary to contour the matrix on the mesial side of most anterior teeth because of the straight line of the mesial surface. It is, however, essential that all matrices be wedged. When no wedge is used, there is invariably an excess of material over the gingival margin which is difficult to trim without damaging the restoration. It is advisable to trim the lingual edge of the strip so that it will not bind against the rubber dam and buckle (Figure 7). The strip should be placed and wedged before mixing commences.

A lingual compound impression helps when a tooth is malposed and it is otherwise difficult to adapt and hold the strip. After removing excess compound and trimming the area of the cavity preparation the impression assists in holding the strip in place.

FINISHING

After removal of the matrix strip the restoration is immediately coated with cocoa butter or silicone grease, the dam is removed and the patient dismissed. If there is any gross excess of silicate cement over the margins, the patient is requested to wait for 15 minutes. The margins are then trimmed with discs, stones or linen finishing strips while keeping the restoration lubricated with cocoa butter. At this time one should attempt only to remove the gross excess from the margins.

It is best to defer final finishing for 24 hours. At that time the margins are

finished with linen finishing strips after placing separators and coating the restoration well with cocoa butter (Figure 8). Pumice should not be used because it cuts the restoration excessively (Figure 9). If the margins are good, no finishing is necessary.

PATIENT INSTRUCTION

The patient should be acquainted with the temporary character of this restoration. He should also be instructed as to his control over the longevity and aesthetic quality of the silicate restoration. Good oral hygiene with proper brushing helps to prolong the life of these fillings. Smoking and certain foods and cosmetics (especially lipstick) tend to stain a silicate restoration. Mouth breathers are advised to coat the filling with petroleum jelly at night before retiring.

SUMMARY

Silicate cement, although basically a poor restorative material, may be improved by proper handling on the part of the operator.

Rubber dam, conservative cavity preparation, proper contouring and wedging of the matrix, mixing and placing the materials according to manufacturers' instructions and finishing and polishing with linen finishing strips all contribute to better, more aesthetic and longer lasting silicate restorations.

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Congenital dental anomalies in a group of British Columbia children

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The authors report the incidence of congenitally missing teeth, supernumerary teeth and fused teeth in 1,309 British Columbia children aged 3-9. Their findings, based on clinical inspection, are compared with results of other studies some of which include radiographic examination. It is impossible to determine whether all permanent teeth — particularly second bicuspid — are present and developing normally unless a full radiographic survey is carried out at least once during the period of mixed dentition. Posterior bitewing radiographs will only show anomalies in the bicuspid region. The presence of supernumerary teeth in the incisor region can best be recorded on an occlusal film. Using masking lead, an accurate image of the maxillary and mandibular incisal regions can be recorded on one such radiograph.

Les auteurs signalent l'incidence congénitale de dents manquantes, de dents surnuméraires et de dents jumelées chez 1,309 enfants de Colombie britannique âgés de 3 à 9 ans. Ils comparent leurs observations, fondées sur l'examen clinique, avec les résultats obtenus dans d'autres études qui comprenaient parfois des examens radiographiques. Il est impossible de savoir si toutes les dents permanentes — et en particulier les deuxièmes prémolaires — sont présentes et se développent normalement, si on ne procède pas à un examen radiographique complet au moins une fois pendant la période de dentition mixte. Les clichés interproximaux ne révèlent que les anomalies dans la région des prémolaires. C'est le cliché occlusal qui révèle le mieux les dents surnuméraires dans la région antérieure. À l'aide d'un masque de plomb on peut obtenir sur un seul cliché une image exacte de la région incisive des maxillaires supérieurs et inférieurs.

TABLE 1 Previous studies on the incidence of dental anomalies in children.

Investigator	No. examined	Age	Radiographs	Per cent with		
				Missing teeth	Supernumerary teeth	Fused teeth
Permanent teeth.						
Clayton ¹ (USA)	1,688	6-11	yes	7.1	2.7	0.2
Castaldi ² (Canada)	457	6-9	yes	4.1	3.1	0.2
Saarenmaa ³ (Finland)	5,003	6-18	no	0.2		
Pedersen ⁴ (Greenland Eskimo)	603	7-	yes	3.0		
Pedersen ⁴ (Angmagssalik Eskimo)	130	7-	yes		2.3	
Deciduous teeth.						
Menczer ⁵ (USA)	2,209	2-6	yes	0.09	0.23	0.14
Grahnén and Granath ⁶ (Sweden)	1,173	3-5	yes	0.4	0.3	0.5

Treatment planning for children during the mixed dentition period necessitates the taking of an adequate number of radiographs. The presence and position of the developing adult teeth and the sites of any caries activity must be determined before commencing treatment. Before embarking on extractions in respect of gross caries or interceptive orthodontics, it is essential to verify that all permanent teeth are present and developing normally. The incidence of missing permanent teeth can be quite high (4-7 per cent)^{1,2} and the occurrence of other dental anomalies, such as supernumerary and fused teeth, is also of significance.

Several authors have reported the relative incidence of these anomalies in different populations and ethnic groups.¹⁻⁶ Table 1 summarizes some of their findings on missing, supernumerary and fused

teeth. The table also indicates whether radiographs were taken. The report of Castaldi et al² (who used radiographs) induced us to assess a group of children which we had treated. We wanted to determine the number of anomalies that could be revealed without radiographs. A comparison between our findings and those of Castaldi would then indicate how many anomalies are missed by omitting a radiographic examination.

METHOD

The children were all treated under a preventive dental program sponsored by the Government of British Columbia. We participated in this program from January 1965 to August 1966. In this period of

TABLE 2 Incidence of anomalies in the permanent teeth of 788 children treated by the authors.

Age	No. of children		Missing teeth		Supernumerary teeth		Fused teeth	
	C	I	C	I	C	I	C	I
6	316	46	0	0	0	0	0	0
7	188	36	0	0	0	0	0	1
8	110	23	0	0	0	1	0	0
9	54	15	1	0	0	2	0	0
Total	668	120	1	0	0	3	0	1
Incidence			0.15%		2.5%		0.8%	

C=Caucasian; I=Indian.

TABLE 3 Incidence of anomalies in the deciduous teeth of 883 children treated by the authors.

Age	No. of children		Missing teeth		Supernumerary teeth		Fused teeth	
	C	I	C	I	C	I	C	I
3	80	21	0	0	0	0	1	2
4	140	19	0	0	0	0	4	1
5	240	21	0	0	5	0	3	0
6	316	46	0	1	0	1	0	1
Total	776	107	0	1	5	1	8	4
ncidence			0.9%		0.6%	0.9%	0.9%	3.7%

C=Caucasian; I=Indian.

20 months some 1,309 children were examined and treated in 22 communities on the coast and in the interior of the province. By arrangement with the federal government a limited number of Indian children of the same age were similarly treated. The latter comprised some 10.3 per cent of the total. The Indian children were of the Salish, Kwakiutl, Cree, Slave, Tsimshian and Haida tribes, 64 per cent being of the last two tribes.

The anomalies recorded were missing, supernumerary and fused teeth. Where an extra tooth of the same anatomical form as an adjacent tooth (sometimes named a supplemental tooth) was present, this was recorded as a supernumerary tooth. Fused teeth were those where one tooth was missing from the arch and one tooth had a bifid crown. Missing teeth were determined from the history obtained from the mothers of the children concerned. With missing lateral incisors, there is the possibility that the tooth may have failed to erupt. In the two cases which we encountered, however, the teeth had definitely not erupted.

RESULTS

The anomalies in both permanent and deciduous dentitions of the children are given in Tables 2-5. Subjects were divided into two groups, aged 3-6 years old and 6-9 years old, to facilitate comparison with previous studies.

Missing Teeth.—Only two children had missing teeth (Tables 2 and 3). Both had

missing incisors in the mandible. One case was observed in the deciduous dentition of a Caucasian child (incidence of 0.15 per cent). The other case was observed in the permanent dentition of an Indian child (incidence of 0.9 per cent). These figures are in marked contrast to those of Castaldi² who reported an incidence of 4.1 per cent in the permanent dentition and 84 per cent involving the second bicuspid. Saarenmaa,³ in a survey of Finnish children, obtained a figure of 0.2 per cent without radiographs, which corresponds with our findings.

Supernumerary Teeth.—Thirteen children presented with supernumerary teeth—10 in deciduous dentition and three in permanent dentition. In all, there were 15 extra teeth present in the 13 mouths. Two cases presented supernumerary teeth in the mandible and the rest occurred in the maxilla. All teeth were completely erupted into the mouth and there was a male to female ratio of 9:4 in occurrence (Table 4). This corresponds exactly with the ratio obtained by Castaldi.²

Fused Teeth.—There was a high incidence of fused teeth, particularly in the deciduous dentition. The figures for the Indian children are very high, being six times the figure cited by Grahnen and Granath,⁶ and nearly 30 times that of Menczer.⁵ Why this should be so is difficult to determine; it may be that there is a greater tendency for this anomaly in Amerindians. The occurrence of sibblings (Tables 5 and 6) may have a bearing

TABLE 4 Case summary of supernumerary teeth.

Case	Race	Age	Sex	Supernumerary teeth
1.	C	5	M	BA ↓ AB
2.	C	5	M	BA ↓ AB
3.	C	5	M	BA ↓ AB
4.	C	5	F	BA A ↓ B
5.	I	6	M	C ↓ BA AB ↓ C
6.	C	7	M	B ↓ A AB
7.	C	7	M	BA ↓ AB
8.	I	7	M	BA ↓ AB
9.	C	8	F	BA ↓ AB
10.	C	8	M	B ↓ ↓ B
11.	I	8	F	21 ↓ 12
12.*	I	9	M	21 ↑ 12
13.*	I	9	F	21 ↑ 12

C=Caucasian; I=Indian.
*Brother and sister.
Arrows indicate supernumerary teeth.

on these figures; but despite such a family relationship the figures are still higher than previously reported in other ethnic groups. There was a high incidence of the anomaly in the mandibular incisor region. The ratio of occurrence in males and females was almost equal being 6:7 (Table 5).

DISCUSSION

This survey disclosed a higher incidence of congenital anomalies in the deciduous dentition than has been reported in other surveys. Only the incidence of missing teeth was lower than in the Swedish children surveyed by Grahnen and Granath.⁶ This could be due to the absence of radiographs in the present study.

The lack of radiographs is clearly reflected by considerably lower incidence of missing teeth in the permanent dentition. With the high morbidity and mortality of second deciduous molars, the presence or absence of the permanent successors is of very great importance. A

reported incidence of 3.5 per cent in the number of missing second bicuspid makes it essential, therefore, to retain the deciduous molar as long as possible. Without radiographs, however, there is no way of detecting the absence of permanent bicuspid. A finding of 0.15 per cent incidence of missing teeth in the age group 6-9 reveals that 97 per cent of the missing teeth will not be detected without radiographs.

What constitutes an adequate radiographic survey? Posterior bitewing radiographs will only show anomalies occurring in the bicuspid region which, as the above figures show, are the most important. The disclosure of supernumerary teeth in the incisor region necessitates a radiograph of this region which can best be obtained with an occlusal film (Kodak DF46).⁷ This is particularly well tolerated by the young child. Using masking lead, an accurate image of the maxillary and mandibular incisal regions can be recorded on one radiograph. Posterior films to show the follicles of the developing teeth and an occlusal film of the anterior teeth should be included in treat-

TABLE 5 Case summary of fused teeth.

Case	Race	Age	Sex	Fused teeth
1.*	I	3	F	AB
2.	I	3	F	BA AB
3.	C	3	F	BA
4.	C	4	M	BA
5.	C	4	M	BA
6.	C	4	M	BA
7.	C	4	F	CB
8.	I	4	M	BA
9.	C	5	F	AB
10.	C	5	F	BA
11.	C	5	F	BA
12.	I	6	M	BA
13.*	I	7	M	21

C=Caucasian; I=Indian.
*Brother and sister.

ment planning at least once during the mixed dentition.

SUMMARY

The incidence of congenital dental anomalies in 1,309 British Columbia children is reported. The children were 3-9 years old. They included 181 Indian children. No radiographs were taken.

Missing teeth occurred in 0.15 per cent of Caucasian permanent dentitions and 0.9 per cent of Indian deciduous dentitions.

Supernumerary teeth were observed in 0.6 per cent of Caucasian deciduous dentitions and in 0.9 per cent of Indian deciduous dentitions. Caucasian children had no permanent supernumerary teeth but 2.5 per cent of the Indian children had such teeth. The frequency of supernumerary teeth was higher in males.

Fused deciduous teeth occurred in 0.9 per cent of Caucasian children and in 3.7 per cent of Indian children. Fused per-

manent teeth occurred in 0.8 per cent of Indian children. None were observed in Caucasian children.

A full radiographic survey should be carried out at least once during the period of the mixed dentition. This should consist of films of all posterior and anterior teeth.

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Dental Practice in a Fluoridated Town • Pitman, New Jersey, a town of 8,000, has a water supply naturally fluoridated at 1.4 ppm. Edward Blackman, a Pitman dentist for the past 22 years, says that despite the town's decreased dental needs neither he nor the four other dentists in Pitman find it difficult to earn a livelihood. "If I were to start all over again, I would never hesitate to practice in a fluoridated community," he says, because "it is rewarding, satisfying, and makes dentistry a pleasure." Dr. Blackman, who has four children aged 10 to 20, says that most children born and raised in Pitman do not experience the rampant tooth decay so prevalent in teenagers. He also claims that "mouths are much cleaner and, with patients conscientiously interested in good dental health, we rarely see extensive decay in our native-born." "Also," says Dr. Blackman, "when people have good teeth, it encourages them to maintain a healthy mouth. A far greater proportion of the population seek regular dental care. Sixty per cent of my clientele are children, and because most need little work, I can render a more thorough service." Dr. Blackman insists that fluoridation must be considered an adjunct to proper dental care. The public is quickly educated to and appreciative of this fact, much to the benefit of both patient and dentist, he declares. — *Dental Abstracts*, July 1967.

Acrylic resin and nylon bristles for gold pin casting patterns

The author describes a modification of the nylon bristle method for reproducing gold castings with retentive pins. In the direct technique, the pins are secured through an acrylic resin pattern from which a casting is made. In the indirect technique, a blob of resin is flowed over the pins in situ. The resin and pins are then gripped and withdrawn from the preparation by impression material. Dies are poured and a wax pattern is prepared for casting.

■

L'auteur décrit les modifications qu'il a apportées à la technique de fabrication des incrustations à crampons en employant des poils de nylon. Dans la technique directe, les crampons sont fixés à un moule de résine acrylique qui sert à faire la coulée définitive. Dans la technique indirecte, une masse de résine est appliquée en place sur les crampons. La résine et les crampons sont ensuite recouverts par le matériel qui sert à faire l'impression. On coule les modèles et on prépare une forme de cire suivant la technique conventionnelle.

tageous as the primary or auxiliary retention for restorations in abutment teeth with short clinical crowns, class 5 inlays, splinting of anterior teeth² and for 'shoeing' worn surfaces. The making of impressions and patterns for this type of restoration is often laborious. Securing a wax pattern of a pin type inlay is difficult and time consuming. The technique described here provides some advantages over conventional methods and may be used directly or indirectly. The nylon bristles and spiral drills (A. L. Engelhardt Co., Los Angeles, California) are available in various standard sizes specified in thousandths of an inch. The bristle size to be used is 0.002 inch smaller in diameter to the pin holes drilled.

DIRECT TECHNIQUE

1. The tooth is reduced as dictated by caries and functional stress involved in the particular situation. When vertical dimension is being increased, the initial preparation in anterior teeth requires no more than a removal of unsupported enamel around the margins and polishing with sandpaper discs or impregnated rubber wheels (Figure 1a).

2. The holes for the pins are started with a No. ½ round friction grip bur to a depth sufficient to hold the spiral drill in position (Figure 1b).

3. A spiral drill in a latch type contra angle handpiece is used to extend the pin holes to a depth of 2-5 mm. depending on the size and proximity of the pulp. The pin holes should be in solid dentine as far away from the dentino-enamel

Parallel pins in gold inlays provide retention with a minimum of tooth structure reduction, thereby avoiding an objectionable display of gold and permitting minimal contact with the gingiva.¹ Parallel retentive pins are especially advan-

junction as possible, placing as many per tooth as needed for retention of the particular restoration (Figure 1c). The holes are kept parallel by preparing one master hole and going back to it as a guide to keep the drill parallel. Alternatively, a mechanical paralleling device may be used.³

4. Nylon pins are cut from nylon bristles in about 8 mm. lengths using a sharp scalpel to ensure uniform edges (Figure 2). One end of the nylon pin is flattened like a nail head by flaming the end and pressing it onto a glass slab.⁴ This provides a retentive end to grip the resin. Surgical bone trimmers are excellent for handling the pins (Figure 3).

5. After the preparation is lubricated with a microfilm separator, the nylon pins are inserted into the prepared holes, keeping them parallel and without binding (Figure 1d).

6. A mix of acrylic resin (DuraLay, Reliance Dental Mfg. Co., Chicago) is mixed in a Dappen dish and applied over the pins with a camel hair brush. Several applications may be necessary until all of the preparation is covered (Figure 1e). When hard, the resin is trimmed to the margins and the pattern is reduced to the desired occlusion. More resin or inlay wax may be added as needed.

7. Plastic sprues (Williams Gold Refining Co. of Canada Ltd., Fort Erie, Ontario) may be attached directly in the mouth or on the bench. The pattern should be reinserted to ensure that the pins draw without binding (Figure 1f).

8. A temporary protective restoration is constructed by forcing paper endodontic points into the pin holes and covering them with a white resin filling material. Flowing the temporary resin into available undercuts will keep the preparation

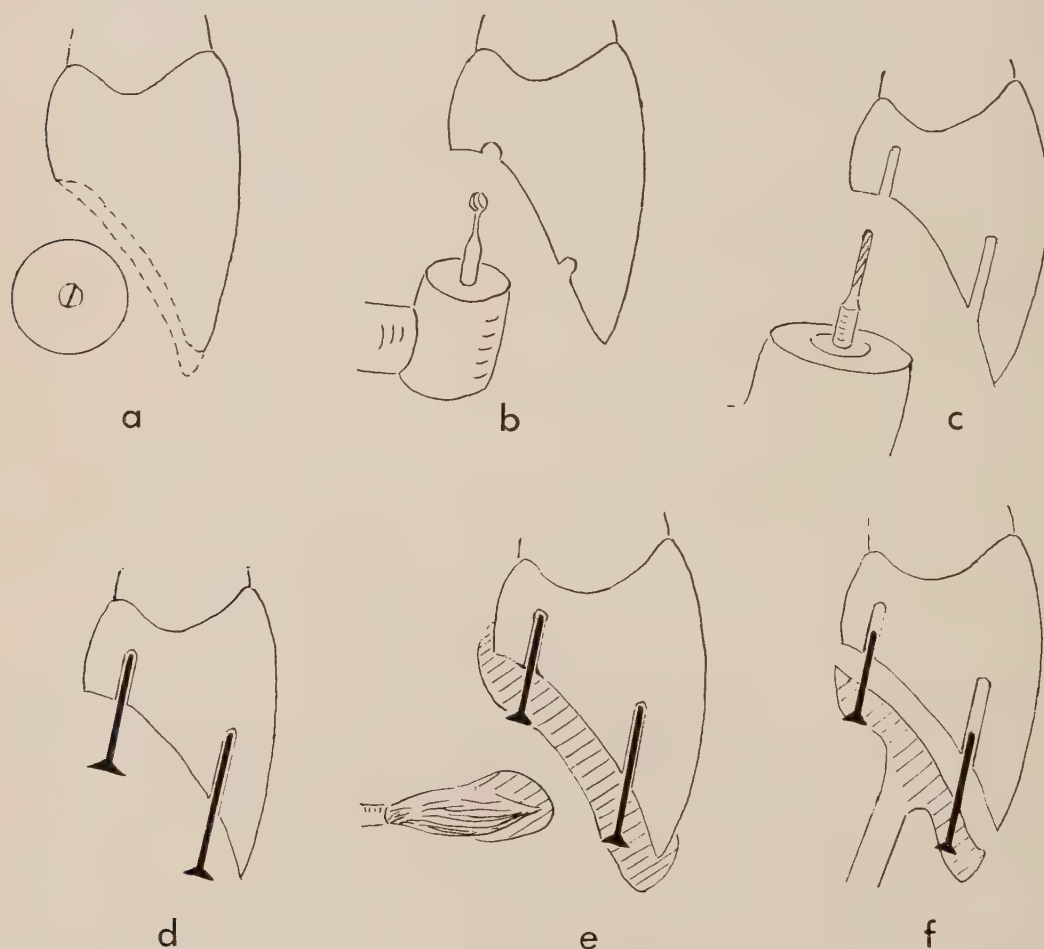


FIGURE 1 (a) The tooth is reduced to allow for the thickness of gold and to protect margins. (b) Preparation of the pin holes started with a No. 2 round bur. (c) Spiral drill for preparation of pin holes. (d) Nylon pins inserted. (e) Resin painted over pins. (f) The trimmed pattern is reinserted to check seating.

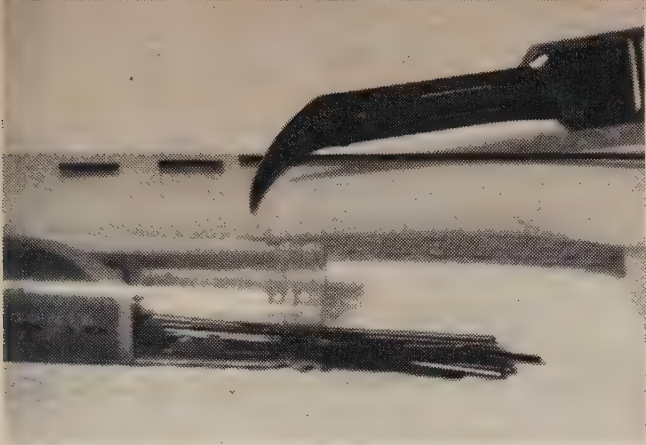


FIGURE 2 Nylon pins cut from bristles.

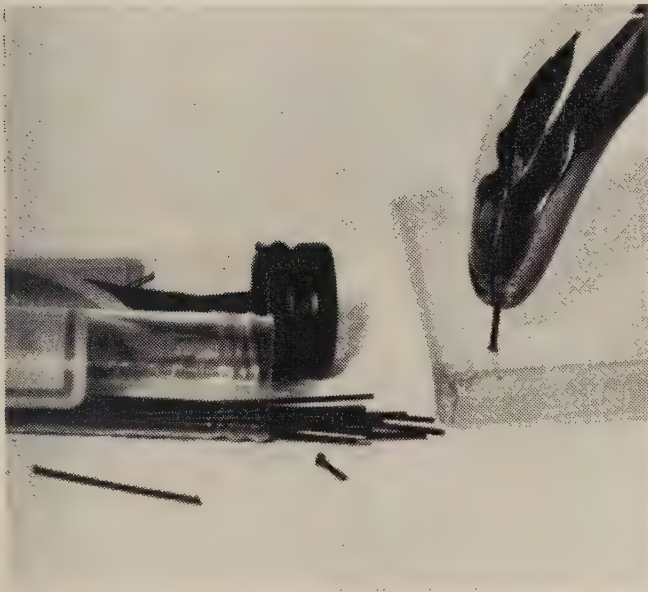


FIGURE 3 Retentive ends made on pins.

clean while the patterns are cast. The paper points may be first moistened with a desensitizing solution such as prednisolone before inserting them into the pin holes.

9. The burnout of nylon and acrylic patterns should be started in a cold furnace. Placing a pattern in a hot furnace may cause the investment mould to fracture when the pattern is allowed to expand rapidly. The pattern is cast in a medium to hard gold. The casting is tried in the mouth and finished (Figure 4).

10. When cementing pin inlays, it is important to avoid the entrapment of air bubbles in the pin holes. An endodontic file dipped in a smooth cement mix helps to introduce the cement into the pin holes.

INDIRECT TECHNIQUE

The involved teeth are prepared and the nylon pins inserted as previously described. A coating of resin mix over the



FIGURE 4 Upper central incisors restored with pin-retained lingual onlays. Note maximum protection achieved with little display of gold.

nylon pins will hold the pins together while checking the pattern for withdrawal and parallelism. A blob of resin is left over the pins to allow the rubber or reversible hydrocolloid material to grip the pattern when the overall impression is taken. Dies are poured and the nylon bristles are removed. A wax pattern is made using a nylon bristle 0.002 inch smaller than the one used for taking the impression. The pattern is cast and the casting is finished as earlier described.

SUMMARY

A method is described for using nylon bristles and acrylic resin in obtaining a casting pattern for pin gold restorations. Combined with Black's basic principles of cavity preparation, gold pin retention is a useful adjunct to restorative procedures.

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Canada and the Provinces

Castonguay Commission Advocates Universal Medicare in Quebec

Quebec should establish a comprehensive universal medicare scheme without delay. So says the report of the Castonguay Commission on Health released August 25. The scheme reportedly meets the four stipulations for federal medicare contributions: universal coverage, complete range of medical services, portability, and public administration. Dental care was not recommended because Quebec is said to lack sufficient dentists. Instead, the report advocates legislation forcing municipalities to fluoridate water.

The overall bill for an immediate province-wide universal plan is set at \$500 million. Apart from first year operating costs, estimated at \$231 million, the commission feels a \$250 million investment in facilities is required. Suggested methods of financing include combinations of federal contributions, the transfer of certain fiscal revenues from Ottawa to Quebec City, provincial deficit financing, and a 1 per cent income tax hike with exemptions for low income persons and a top limit per taxpayer of \$150 a year.

The eight member commission, headed by Quebec City actuary Claude Castonguay, worked on the project for nine months. Mr. Castonguay reportedly argued for universal medical care on the premise that man is a human resource whose health is an important factor in economic growth.

1968 Youth Science Fair to Meet in BC

Canada's junior scientists will converge on Vancouver next year where the Uni-

versity of British Columbia will be the site of the seventh Canada-Wide Science Fair, May 9-11, 1968. The Canadian Dental Association is one of the sponsors of the Youth Science Foundation which promotes extra-curricular science activities and organizes the annual fair.

Atlantic Provinces Dental Secretary Proposed

An official of the Prince Edward Island Dental Association has proposed the appointment of a full-time executive secretary to serve the profession in the four Atlantic provinces. The suggestion, by G. D. Barrett, Charlottetown, is outlined in the August issue of *NSDA News* published by the Nova Scotia Dental Association. It constitutes a counter-proposal to a suggestion by R. A. I. Epstein, Halifax, who earlier had advocated the appointment of a full-time secretary for Nova Scotia.

Dr. Barrett cited the following reasons in support of the cooperative employment of an official by dental groups in the four Atlantic provinces:

Inability of a part-time secretary to handle the increasingly complex administrative requirements of organized dentistry;

Elimination of duplicate efforts by four separate groups that share similar problems and goals; and

Projected cooperative administrative arrangements by government agencies concerned with health care plans in the four provinces.

By pooling the resources of the region it is possible to offer a salary that would attract a competent dental secretary, Dr. Barrett explained. Each provincial organization would retain its identity and control licensure, dental education and

professional discipline, whereas 'political' affairs such as public relations, fees and government relations, would be the responsibility of an Atlantic Provinces Dental Association.

Fort Steele has Old-Time Dental Office

The ghost town of Fort Steele in British Columbia has been reconstructed on a new 50 acre site in the East Kootenays to form a complex of pioneer history. Restored dental office equipment and instruments are on display in the new Fort Steele museum—the focal point of the complex. Three churches, a newspaper office, a hotel and numerous log cabins from three eras—the 1864 Wild Horse gold rush, the 1887 North West Mounted Police garrison, and the frontier town of the following two decades—have been restored for the new Fort Steele. The project, begun three years ago, was opened by BC Premier W. A. C. Bennett on June 24.

L. King Grady of Vancouver, whose hobby is collecting old-time dental equipment, was responsible for setting up a complete dental office. The materials came from all parts of Canada and some came from as far afield as Phoenix, Arizona.

Before being moved to Fort Steele, the dental office was on display when the British Columbia Dental Association held its annual meeting in Vancouver May 24-27.

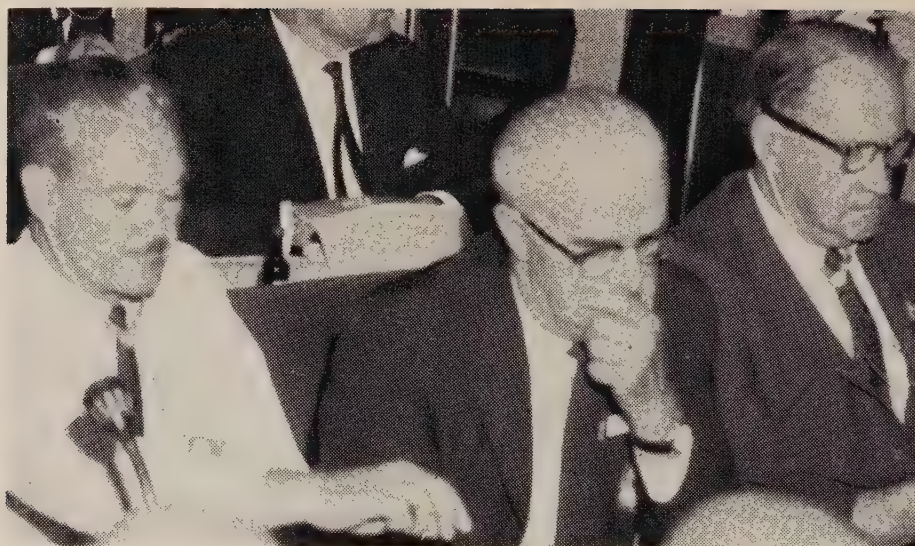
International Items

Dr. Stewart Ross of Britain Becomes FDI President

W. Stewart Ross of Britain was elected president of the Fédération Dentaire Internationale at its XIVth World Dental Congress and 55th annual session in Paris, France, July 7-13. He succeeds P. O. Pedersen, Denmark, who took over the presidency when Knut Gard of Norway died in office in March of last year. Other officers elected were: J. Stork, Netherlands, president - elect; Jacques Charon, France, vice - president; Hans Freihofer, Switzerland, speaker; G. H. Leatherman, Britain, secretary general; and R. Braun, Germany, treasurer. Total attendance was approximately 8,000, representing 83 countries. Official representatives from the Canadian Dental Association were Henri Brouillet, Montreal; Gustave Ratté, Quebec City; and CDA Secretary W. G. McIntosh, Toronto. Other promi-



L. K. Grady, Vancouver, displays vintage equipment which he assembled for a restored dental office in the reconstructed BC gold mining town of Fort Steele. The equipment was first shown at the British Columbia Dental Association convention in Vancouver, May 24-27, before being moved to Fort Steele.



Canadians shown at a busy session during the recent FDI Paris World Dental Congress are (l. to r.) CDA Secretary W. G. McIntosh and former CDA Secretary Don W. Gullett, both of Toronto, and Gustave Ratté of Quebec City.

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nent Canadians at the congress were former CDA Secretary D. W. Gullett of Toronto, Brig. B. P. Kearney, Director General of Dental Services for the Canadian Forces, and R. A. Connor, chief of the Dental Health Division, Department of National Health and Welfare.

The General Assembly budgeted for expenditures totalling £43,555 in 1968, but anticipated income of £36,700 is expected to leave a deficit amounting to £6,855. This follows a deficit of £1,730 on 1966 operations. In the face of rising costs the FDI will increase member association subscription rates by 50 per cent over the next three years. The first increment amounting to 20 per cent will be applied on January 1, 1968. On the basis of present membership, this is expected to produce a further £2,916 in 1968. The Executive Committee will also review the Federation's subscription structure during the coming year. Results of this survey will be sent to member associations before the 1968 annual session in Varna, Bulgaria, where General Assembly delegates are expected to review the increases proposed for 1969 and 1970 in the light of these findings. In other actions the General Assembly also:

Accepted an invitation to hold the 58th annual session in Bucharest, Rumania, in 1970; and

Named Mexico City as the site of the

XVth World Dental Congress in 1972.

The FDI also adopted a policy statement on alternatives to water fluoridation and expects to adopt new guidelines for developing dental health education programs at the 1968 annual session.

The first copies of a new work, *The Story of the FDI*, were displayed at the Paris congress. This book relates the history of the Federation from 1900 to 1962, with a forward look to 1966. Order forms for the book (price \$7) are obtainable from G. H. Leatherman, FDI secretary general, 64 Wimpole Street, London W.1, England.

Canadian Dentists Invited to Dec. 4-8 New York Meeting

Canadian dentists have been invited to attend the 43rd annual Greater New York Dental Meeting to be held at the Statler Hilton Hotel, New York City, December 4-8. This year's scientific program will offer 11 seminars, including an all day session on implants by Michel and Raphael Chérchève of Paris, France. Other highlights include 22 essays, 24 registered clinics, 36 projected clinics, 40 clinical demonstrations, 48 table clinics, 35 motion pictures, and 256 exhibits showing the newest equipment and supplies as well as latest research studies.

For programs and reservations, please write to Mrs. Mable Purdy, executive secretary, Room 106A, The Statler Hilton Hotel, New York City, New York 10001, USA.

New York Hospital Offers Anaesthesia and Surgery Courses

The Jewish Memorial Hospital, New York City, will offer postgraduate courses in anaesthesiology (inhalation analgesia in pain control) November 16-17, 1967, and oral surgery, February 16, 1968.

For further information and application forms write to the Secretary, Continuing Dental Education Program, Department of Dentistry, Jewish Memorial Hospital, 196th Street and Broadway, New York, NY 10040, USA.

Endodontic Conference in Philadelphia Set for April '68

The University of Pennsylvania School of Dental Medicine, Philadelphia, will be the site of the fourth International Conference on Endodontics, April 1-3, 1968. Scheduled are three symposia on corticoid-antibiotic preparations, periodontic-endodontic treatment, and intentional replantation. In addition, a period will be devoted to a discussion of N2 in the treatment of pulpless teeth.

The tuition fee of \$150 includes lunches and a copy of the *Transactions of the Fourth International Conference on Endodontics*, to be published about June 1968. For further information please write to Mrs. Mary W. Kolb, secretary, Fourth International Conference on Endodontics, 4001 Spruce Street, Philadelphia, Pennsylvania 19104, USA.

Dental Organizations

RCDS Committee to Study Education and Duties of Hygienists

The Royal College of Dental Surgeons of Ontario has set up a special committee to

study the education and duties of dental hygienists. T. H. Wachna, Windsor, is chairman. The committee is required: (1) to review present educational requirements and duties; (2) to assess possible changes in university requirements; (3) to review RCDS bylaws respecting dental hygienists; and (4) to report on the desirability of expansion of duties and to suggest the direction and extent, if approved. Ontario readers have been invited to send their comments to T. H. Wachna, 1500 Ouellette Avenue, Windsor, Ontario.

Dr. Sedlezky Heads Montreal Alpha Omega



Benjamin Sedlezky

Benjamin Sedlezky has been elected 1967-8 president of the Montreal Alumni Chapter of the Alpha Omega Fraternity. Named as other officers were: B. L. Mendel, vice-president; Melvyn Shevell, corresponding secretary; Edward Slapcoff, recording secretary; A. S. Wainberg, treasurer; and Herbert Ptack, historian-archivist.

Dr. Fiset Heads Quebec Association

Jacques Fiset, Montreal, was elected president of the Quebec Dental Association at the conclusion of the group's convention in Montreal August 19. Named with Dr. Fiset were Jacques Du-four of Quebec City, president-elect; Marc Trépanier of Valleyfield, vice-president; Vincent Dontigny of Trois-Rivières, secretary; and Charles Tessier of Sherbrooke, adviser.

Saskatoon Society Elects Dr. Peacock

G. H. Peacock was recently installed as president of the Saskatoon and District Dental Society. Elected also were S. O. Sawa, vice-president, and R. Chayka, secretary-treasurer.

At the same meeting members of the society were addressed by K. J. Paynter, newly appointed dean of the Faculty of Dentistry, University of Saskatchewan. Dr. Paynter informed the audience about progress in establishing the new dental school.

Canadian Dental Schools

Aptitude Test Brochures Available

The Canadian Dental Association has published new brochures in English and French giving details of the 1968 CDA Dental Aptitude Test Program for appli-

cants to first year dental classes at Canadian dental schools. The brochures give information about predental requirements, the professional course of study, the DAT program, test dates (January 5 or 6 and April 26 or 27, 1968), application procedure, test centres, test reports, and fees.

The program is supervised by the CDA Council on Education. Dental aptitude tests which are required or recommended by every Canadian dental school help to predict an applicant's probable success in the dental curriculum. Test results are considered with all other pertinent information in determining the applicant's admission to a dental school.

Copies of the DAT brochures may be obtained by writing to Dental Aptitude Test Program, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

UBC Dental Building Named after Former UBC President

The University of British Columbia's new Faculty of Dentistry building has been named the 'John Barfoot Macdonald Building (Dental Health Sciences)' in honour of UBC's former dental president.

Dean S. Wah Leung said the decision to name the \$5,212,124 building for Dr. Macdonald recognizes his key role in the establishment of the faculty.

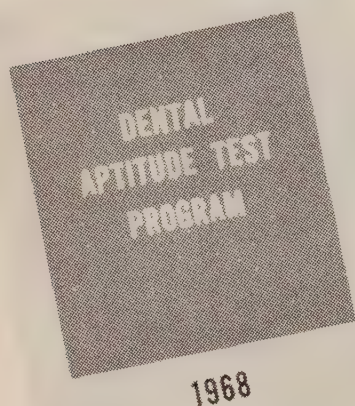
Dr. Macdonald was named consultant on dental education to UBC in 1955. He wrote reports in 1956 and 1961 which served as blueprints for the establishment of the faculty.

In 1962 Dr. Macdonald was named president of UBC, a post held until June 30 of this year.

Rapidly nearing completion, the UBC dental building was expected to be in operation at the beginning of this month in time for the 1967-8 academic session.

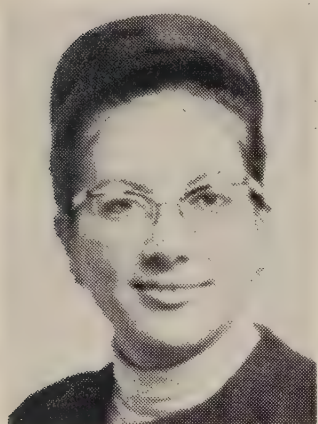
Dr. Ortiz Joins McGill Faculty

Dean James McCutcheon of the Faculty of Dentistry, McGill University, Montreal, has announced the recent appointment of Araceli Ortiz as assistant professor in the



Department of Oral Pathology and Diagnosis.

Born in Culebra, Puerto Rico, Dr. Ortiz graduated in 1962 from the University of Puerto Rico School of Dentistry and completed a three year residency in pathology at the University District Hospital, Puerto Rico. Dr. Ortiz received her MSD degree from the University of Indiana this year.



Araceli Ortiz

She was selected as an outstanding alumna of the Colegio San Antonio, Puerto Rico, in 1964, and of the University of Puerto Rico School of Dentistry in 1965. Additionally, Dr. Ortiz received a special citation as student clinician at the American Dental Association's annual session, 1966. She is a fellow of the American Academy of Oral Pathology.

Royal Canadian Dental Corps

Sixteen Officers Transferred

Canadian Forces Headquarters recently announced the following postings:

Lt.-Col. **D. H. Protheroe** of Elnora, Alberta, has been transferred to the Air Division in Europe as commanding officer. He replaces Lt.-Col. **J. C. Brick** of Windsor, Ontario, who will go to headquarters, Mobile Command, St. Hubert P. Quebec. Captains **G. R. Nye**, New Glasgow, Nova Scotia, **H. S. Wood**, Halifax, **R. M. Depledge**, Slave Lake, Alberta, and **J. J. R. C. Bellerose**, St. Cleophas, P. Quebec, have been posted to No. 4 Field



D. C. Williams (r.), the new president of the University of Western Ontario, London, points out an interesting feature of the nine-level, multi-million dollar Dental Sciences Building now under construction at the university. Looking on are W. J. Dunn, (l.), dean of the Faculty of Dentistry, and O. H. Warwick, vice-president (Health Sciences).

Dental Unit with the Canadian Brigade in Germany. Maj. **J. L. Y. Cyrenne**, St. Wenceslas, P. Quebec, and Captains **J. P. A. Legendre**, Romauld, P. Quebec, and **R. F. Cooper**, Halifax, have been transferred to No. 35 Field Dental Unit with the Air Division.

Officers who recently returned to Canada from overseas postings with the Brigade are Majors **J. F. Begin** of Montreal, transferred to Winnipeg, and **P. P. Morin** of Regina, who is posted to St. Jean, P. Quebec. Majors **B. A. Gaudet** of Nicholas, Prince Edward Island, **W. K. Dickie** of Campbellton, New Brunswick, and **Y. Kamachi** of New Westminster, British Columbia, have returned from the Air Division to Summerside, Prince Edward Island, Halifax and North Bay, Ontario, respectively.

Capt. **J. O. Strom** of Prince George, British Columbia, has returned to Ottawa from Cyprus and has been replaced by Capt. **D. G. Wilson** of Tisdale, Saskatchewan.

Economics

Ontario Physicians Would Hobble Oral Surgeons

The Ontario Medical Association has taken issue with the rights and privileges enjoyed by oral surgeons whose training it labels as "limited in scope." An OMA brief to the Ontario Legislature's Select Committee on the Healing Arts claims that seven operations which oral surgeons can perform under the Ontario Medical Services Insurance Plan are "truly major surgery" and "should be the responsibility of a medical specialist." They include open reductions of fractures of the maxilla; open reductions of fractures of the mandible; surgical correction of prognathism or micrognathia; condylectomy; therapeutic or diagnostic alcohol nerve block; avulsion of nerve (mental, infra-orbital or inferior dental); and open reduction of temporomandibular dislocation.

The OMA offered its own list of 11 operations which it said an oral surgeon may perform "subject to the agreement of the Medical Advisory Committee and on the recommendation of the Chief of the Surgical Staff of an individual hospital, and under the jurisdiction of the Surgical Department." These operations include surgical removal of teeth, erupted, unerupted or impacted; alveoplasty and gingivoplasty; sulcus deepening and ridge reconstruction; exposure of tooth for orthodontic treatment; root resection; incision and drainage of abscess of dental origin; fraenectomy; intra-oral biopsy; excision of benign intra-oral tumours; treatment of infections, mouth and jaw; and closed reduction of temporomandibular dislocations. The OMA buttressed its demand for medical supervision by citing a January 16, 1967 resolution of the Royal College of Physicians and Surgeons of Canada. This says that "oral surgery, like other surgical specialties, should be under the supervision of the Director of the Department of Surgery."

Principal targets of the OMA's criticism are:

1. Section 1 (c) of the Dentistry Act of Ontario which states that "dentistry . . .

includes . . . treating . . . [any] condition of, in or from any human tooth, jaw or associated structure or tissue or any injury thereto." The OMA questions the intent of the phrase "or associated structure or tissue."

2. The requirements for the designation of specialist oral surgeons. The OMA brief claims that "the 'Royal College of Dentistry' (sic) grants a specialist certificate in oral surgery after three years of postgraduate study" whereas "the Royal College of Physicians and Surgeons of Canada grants a specialist certificate after at least five years of postgraduate training." The OMA contends that the two standards of specialist qualification are confusing to those responsible at the hospital level for granting surgical privileges.

Will Medicare Pile Another \$420 Million on Top of Federal Deficit?

If all the provinces agree to introduce medicare next July 1 it will add at least \$420 million to the federal government's annual costs. And, in the opinion of the August 19 *Financial Post*, medicare could cost a lot more.

This is the dilemma federal policy makers face in trying to work out their financial requirements for next year, and the reason why Finance Minister Mitchell Sharp has set the whole medicare funding question to one side while drawing up spending plans.

Ottawa has agreed to pay 50 per cent of the national average per capita cost of medical care to those provinces which meet the requirements of the medicare legislation. This year, when medicare was originally due to begin, Ottawa had estimated \$34 as the average per capita cost. But next year the estimated cost will rise to \$42. The year after that it will certainly be higher still, but nobody is sure by just how much.

If all the provinces start on deadline the federal government will have to pay out \$210 million during the last six months of 1968, and a higher figure for the first six months of 1969. However, because no one knows what the per capi-

ta cost will be or how many provinces will participate in 1969, realistic spending estimates are simply unavailable. As a result, concludes the *Financial Post*, Ottawa will not be upset if most of the provinces decide to wait another year before joining up.

Public Health

Dr. McGaughey Joins Toronto Department

James McGaughey



James McGaughey, Halifax, joined the Toronto Department of Public Health July 24 as assistant director of dental services.

A native of Bonshaw, Prince Edward Island, Dr. McGaughey earned a BA (cum laude) degree in 1940 from St. Dunstan's University, Charlottetown, PEI, and DDS degree in 1951 from Dalhousie University, Halifax. During World War II, he served with the Royal Canadian Ordnance Corps. Following graduation from Dalhousie University, Dr. McGaughey re-entered the armed forces to serve with the Royal Canadian Dental Corps in Canada, in Europe and aboard HMCS Bonaventure until 1964. That year he enrolled at the School of Hygiene and Faculty of Dentistry, University of Toronto, where he obtained a diploma in dental public health in 1965. In July of the same year Dr. McGaughey accepted an appointment as director of dental services, Halifax City Department of Health and Welfare, a position which he held until his recent appointment in Toronto.

Vancouver School Enrolment Climbs as Dental Health Slips

Vancouver's dental director has charged that the dental health of his city's children is poor. Writing in *Health '66*, the annual report of the Greater Vancouver Metropolitan Board of Health, S. J. Gallagher said that the number of grade 1 children who last year required no dental treatment dipped by 4 per cent, reversing a previous four year trend.

"Enrolment in the metropolitan area increased and cases treated in our clinics also increased," he said. "However, the percentage of children in grade 1 not requiring treatment decreased." Attendance of children at family dentists did not increase, Dr. Gallagher added. The result was a lower percentage of dentally fit grade 1 children at the end of 1966.

Fluoridation

Fluoride Tablets Lose Popularity in Calgary

Two out of three Calgarians do not bother to get their free fluoride supplement prescriptions refilled, according to the July 29 *Calgary Herald*.

A total of 12,477 prescriptions have been issued since the city health department launched the program in November 1966. Each prescription is for a three months' supply of tablets for children under 16 years of age. Calgary's water supply is not fluoridated.

Despite the public's lack of enthusiasm, there is no intention by the health department to discontinue this service. Saskatchewan's Department of Public Health, in contrast, announced a phase-out of its fluoride tablet program last January.

Fluorides Cut into Oral Surgeons' Work

With more than 72 million Americans on fluoridated water, oral surgeons in fluoridated communities report they are now seeing fewer children. Greater public demand for dental care, however, is keep-

ing these practitioners busier than ever due to an increase in the number of adult patients.

Investigators polled those specialists who had practised continuously in the same communities both before and after fluoridation. Of the 35 specialists who replied, 33 stated that they are busier than ever although the type of dental care they are giving is gradually changing. Most agreed that while they were extracting fewer children's teeth because of decay, the number of extractions for orthodontic treatment was on the increase and now comprises the major portion of their child practice. Formerly, the removal of decayed teeth was a large part of the oral surgeon's practice.

Research

Test Fluoridated Salt in Colombia

Residents of four remote villages in the high reaches of the Colombian Andes Mountains are participating in a test to determine whether fluoridated salt, added to the diet, will reduce the incidence of dental decay as effectively as fluoridated water. Aided by a grant from the US National Institute of Dental Research, the long-term study is being conducted by a team of physicians, dentists and nutritionists from the University of Antioquia in Medellin, Colombia.

Topical Fluoride Solutions Compared

Research supported by the US National Institute of Dental Research has demonstrated that more fluoride is retained in surface enamel when the amount of tin salt in a topical fluoride application is decreased or eliminated and when sealers are used following topical treatments. Several independent clinical evaluations of various topical fluoride treatment solutions have indicated that the presence of tin salt may reduce the efficacy of the fluoride application in preventing tooth decay.

When NIDA-supported investigators

tested the relationship between fluoride uptake in enamel and the presence of stannous tin in the fluoride solutions they found that the amount of fluoride taken up by tooth enamel is, indeed, inversely related to the amount of tin salt in the solution.

The scientists cite the evidence that increase in fluoride content of enamel in the form of fluorapatite improves caries resistance. Tin has been shown by other researchers to decrease enamel solubility *in vitro*, but tin alone in a topical solution does not prevent decay. Only fluoride-bearing topical solutions are clinically effective. Therefore, it seems preferable to use a topical fluoride solution that will be most effective in decreasing the tooth's solubility because of the increase in fluoride deposition.

The investigators tested solutions of (1) stannous fluoride, (2) stannous fluoride plus phosphate, (3) the stannous fluoride plus phosphate formula aged for three weeks, and (4) phosphate with sodium fluoride. Each mixture was applied to the surface of 20 blocks of human enamel, and the amounts of tin and fluoride deposited were determined.

These experiments confirm that fluoride uptake is greater when a phosphate-fluoride solution without tin is used. There is an inverse relationship between the presence of tin and deposition of fluoride. As the tin in a solution increases, the deposition of fluoride decreases linearly to a plateau that is reached at a level of about 3 per cent tin in the solution. Moreover, a stannous fluoride solution without phosphate deposits more tin and less fluoride than the same solution plus phosphate, because the latter forms an insoluble precipitate with some of the tin. Hence, the amount of fluoride incorporated in enamel increases as the amount of tin in the solution decreases.

The investigators also report that a considerable amount of fluoride deposited on the tooth surface in the first minutes after exposure to any topical fluoride application is not permanently bound. When they extracted and examined teeth at varying time intervals after fluoride treatment, they found that a

considerable amount of fluoride is lost as calcium fluoride or unreacted fluoride. *In vivo* tests made on enamel blocks cut from untreated teeth taken from the same patients showed similar loss occurring. The investigators emphasize that maximum clinical effectiveness requires maximum fluoride penetration and permanent retention rather than mere temporary deposition. The investigators also noted that as a result of drinking fluoridated water containing 1.0 ppm of fluoride, a coating of fluorapatite is formed in the enamel and protects the exposed tooth enamel surface.

Preliminary tests suggest that a temporary coating with sealers following topical applications increases the amount of fluoride retained in the tooth surface. Of the sealers tested, beeswax and polyoxyethylene were the most effective.

Surveys Show Two Cariogenic Streptococci Universally Present

In each of 450 children examined several times over a three month period, dental scientists have found two strains of streptococci, one with mild, the other with moderate caries activity. A third highly cariogenic strain was detected infrequently.

Several strains of human streptococci that can produce experimental caries in hamsters have been isolated. Of the three strains first detected, the human type A (AHT), the most destructive, is twice as active as human type B (BHT), which, in turn, is twice as potent as the third, the HHT. Scientists have now made epidemiological surveys to determine the relationship of these organisms to human caries.

The investigators detected strains BHT and HHT in all subjects regardless of the amount of tooth decay, but found strain HHT in only 7 to 19 per cent of the subjects examined. This suggests that these organisms normally live in the mouth in a balanced state and that a change, such as one in the diet, may increase their numbers and cause decay.

The most active strain, AHT, was recovered only in one subject on all three examinations made one month apart. Per-

haps this strain is difficult to retrieve because the organisms adhere tenaciously to teeth and may be localized in certain areas on the teeth.

To determine when the universally present BHT and HHT strains first appear, 50 infants were studied from almost immediately after birth to several hours post feeding. In nine infants the HHT organisms were detected within the first day after birth; the BHT was found beginning about one month after birth, and the AHT was not found in these early cultures. Vaginal smears of the mothers were consistently negative for all three strains.

Because other human streptococci strains, serologically different from the first three, also produced caries in gnotobiotic rats, serological tests to detect their presence are planned. This work, supported by the US National Institute of Dental Research, is being carried out at the University of Miami School of Medicine.

Electron Microscope Discloses New Facts About Periodontic Disease

An electron microscopic study supported by the US National Institute of Dental Research has revealed pathological changes not only in the connective tissues which attach teeth to jaws, but also in tooth cementum in cases of chronic human periodontic disease.

In order to follow in detail the destructive process which results in loss of teeth, a comparison was made of normal connective tissues with tissues altered by chronic periodontic disease.

Teeth were extracted from inflamed jaws, and thin sections prepared and examined under the electron microscope. These sections show normal tissue at the base of the roots. Here most striated collagen fibrils are 500-800 Angstroms in diameter and only 200-500 Angstroms apart. Pathological changes occur near the region of epithelial attachment. The first sign of trouble appears some distance from the cementum when the number of large, striated collagen fibrils decreases and the number of small gran-

ular filaments scattered between them increases. As destruction progresses, the distance between the large fibrils increases to some thousand Angstroms, and the space is filled with granular debris, while many more small granular filaments appear in bundles. Sometimes the large fibrils have faint striations and frayed ends, or they may disintegrate longitudinally into non-striated filaments. Eventually, almost all the fibres disappear.

Normally, striated collagen fibrils penetrate into the outer layer of cementum which is very dense and has a smooth outline. However, as the fibrous connective tissue of the periodontic membrane progressively deteriorates, changes in the cementum also occur. The surface layer loses many of its crystals as well as the attached fibrils, and looks like a brush. The epithelial cells become separated from the cementum surface, and eventually a layer of homogeneous material, thought to be secreted by epithelial attachment cells, forms a cuticle between the hard surface and the epithelium wherever the bony cementum is exposed to mouth fluids.

The partly decalcified cementum often reveals a uniform spacing of the remaining bone crystals conforming to the lost collagen fibrils formerly embedded there. The cementum also tends to retain more crystals at the surface than just beneath it, where maximum disorganization is seen in a zone some 18 microns wide.

Awards and Honours

Gustave Ratté of Quebec City was the recent recipient of a City of Paris Medal. Similar medals were bestowed on four other distinguished dentists during the FDI Paris World Dental Congress. The ceremony took place on July 7 in an or-

nate salon of the Paris City Hall. The vice-president of the Paris Municipal Council, in an accompanying citation, said that the citizens and officials of his city wished to honour outstanding members of the profession who by their knowledge of dental science, their devotion to public welfare and their distinguished personality had earned acclaim within and outside their native country.

Deaths

Beierl, Garnet Douglas. 74. Toronto. Royal College of Dental Surgeons of Ontario, 1916. 18-8-67. Survived by Myrtle E. (wife); Douglas and James (sons); Mrs. Joseph Ward (daughter); and Elvira Beierl and Mrs. Ruby Little (sisters).

Bell, Richard Alling. 35. Weston, Ontario. University of Toronto, 1956. 12-8-67. Survived by Jane Gertrude (wife); Susan and Donna (daughters); and Robert (brother).

Blacklock, J. Neilson. 71. Montreal. McGill University, 1924. 27-7-67. Survived by Mrs. D. M. Harrison (daughter); John (son); William and Alex (brothers); and Mrs. J. D. Henderson, Mrs. Elmer McConnell and Grace (sisters).

Churchill, Samuel Herbert. 69. Winnipeg. Royal College of Dental Surgeons of Ontario, 1920. 12-8-67. Survived by Fannie (wife); Gordon (son); Mrs. R. J. Matas (daughter); Mrs. J. M. Bernstein and Mrs. P. Sheps (sisters); and three grandchildren.

Hackett, John Elmer. 58. Toronto. University of Toronto, 1935. 9-8-67. Survived by Alice Mary (wife), and R. J. (son).

Rivkin, Herman. 64. Toronto. University of Toronto, 1928. 31-8-67. Survived by Lillian (wife).

L'Association

Nomination d'une équipe pour l'établissement d'un programme dentaire national à l'intention des enfants

Une nouvelle étape vers la réalisation d'un programme de santé dentaire national à l'intention des enfants a été franchie le 30 août, lorsque le président de l'ADC, le Dr W. P. Munsie, a annoncé la nomination de sept dentistes qui formeront équipe pour accélérer l'élaboration du programme. Ce groupe se compose du Dr W. P. Munsie de Vancouver, du Dr J. P. Coupland d'Ottawa, du Dr Henri Brouillet de Montréal, du Dr H. R. MacLean d'Edmonton, du Dr W. G. Bruce de Kincardine, Ontario, du Dr A. L. MacIsaac de Charlottetown et du Dr W. J. Spence de Toronto, qui font tous partie du Conseil exécutif de l'ADC.

Cette équipe a été formée sur l'initiative du Conseil des Gouverneurs, qui a demandé au Conseil exécutif de considérer de toute urgence l'établissement d'une telle équipe. Au cours de l'année dernière, un sous-comité des Services dentaires a étudié un projet pour l'établissement d'un programme dentaire national à l'intention des enfants. On prévoit que l'équipe surveillera les derniers stades de cette étude et s'occupera de sa promotion.

Canada

Un représentant officiel à Ottawa demande la création d'une association nationale pour la santé dentaire

Un représentant fédéral a confirmé que différents services dentaires pouvaient

être assurés dans le cadre de la loi sur les soins médicaux au Canada (loi C-227) sans avoir besoin d'être approuvés à nouveau par le Parlement. Le Dr R. A. Connor, chef du département de la Santé dentaire du ministère de la Santé nationale et du Bien-être, a mentionné la section de la loi sur "les autres services de santé", par laquelle des services dentaires sélectionnés, fournis par les dentistes dans des conditions données pourraient être classés comme "services nécessaires."

D'après le Dr Connor, d'autres services dentaires supplémentaires pourraient être ajoutés à la liste des services nécessaires sans qu'il faille solliciter l'approbation du Parlement en lui présentant de nouveaux projets de loi.

Le Dr Connor déclare également que la demande publique de traitement n'est pas en relation avec le besoin de soins dentaires. "C'est notre responsabilité en tant que profession responsable de la santé publique d'augmenter la quantité des soins aussi rapidement et efficacement que possible", a-t-il déclaré. Si cela était fait et que la demande soit mieux en rapport avec le besoin, l'écart entre les possibilités de soins dentaires et la demande ne serait plus matière à discussion.

Le Dr Connor, qui est lui-même un ancien dentiste traitant, a dit que l'apathie du public en ce qui concerne la santé dentaire était la menace la plus dangereuse pour le statut professionnel autonome des dentistes. Insistant sur le besoin d'un intérêt intelligent de la part du public dans le domaine des soins dentaires, il a indiqué la nécessité de créer une organisation non professionnelle, qui s'occuperait de la santé dentaire nationale et succéderait au Conseil canadien de l'hygiène dentaire, qui a été dissous, il y a environ une génération. "Sans support de la part du public, nous manquons d'alliés

énergiques pour maintenir notre statut et assurer nos revenus. Je ne conseille pas la formation d'un front non professionnel pour défendre nos associations professionnelles," a-t-il déclaré. "Je suggère la création d'un corps indépendant énergique, qui après avoir évalué soigneusement les recommandations de nos associations et des gouvernements, ainsi que les problèmes du public, supportera de façon active les intérêts du public. Un tel corps non professionnel pourrait sauvegarder le public et la profession contre l'adoption de programmes injustes et inapplicables." Des associations purement professionnelles ne peuvent pas faire seules le travail nécessaire. Les hommes politiques, comme le public, s'en méfient. "Denticare" n'est pas encore un fait, mais il est certainement en train d'apparaître à l'horizon," a avancé le Dr Connor.

Un dentiste de la Nouvelle-Ecosse demande une organisation dentaire plus efficace

Dans le numéro de juin de la NSDA News (publiée par l'Association dentaire de la Nouvelle-Ecosse), un dentiste de Halifax, le Dr R. A. I. Epstein, a fait plusieurs suggestions pour améliorer l'efficacité de la profession dentaire dans la Province. Il est essentiel, a-t-il déclaré, que la profession soit mieux organisée et mieux informée. Il est indispensable que la NSDA ait un personnel directeur compétent, à temps complet. Les cotisations annuelles devront peut-être atteindre \$200 ou \$250, mais même dans ce cas, elles ne représenteront qu'un pourcentage négligeable du revenu brut annuel des dentistes de la Nouvelle-Ecosse.

L'AMC va s'installer à Ottawa

L'AMC a choisi l'année du Centenaire pour déménager son siège social de Toronto à Ottawa. Cette décision a été prise au cours de la centième réunion annuelle de l'AMC, qui s'est tenue à Québec et à Montréal, du 9 au 22 juin.

Chronique internationale

Le Dr Stewart Ross de Grande-Bretagne est le nouveau président de la FDI

Le Dr W. S. Ross a été élu président de la Fédération dentaire internationale au cours du XIVème congrès mondial et de la 55ème réunion annuelle à Paris, du 7 au 13 juillet. Il succède au Dr P. O. Pedersen, du Danemark, qui termina le terme du président Knut Gard de Norvège, décédé en fonctions en mars dernier. Les autres dirigeants sont: le Dr J. Stork, des Pays-Bas, président-élu, le Dr Jacques Charon de France, vice-président, le Dr Hans Freihofer, de Suisse, président d'assemblée, le Dr G. H. Leatherman, de Grande-Bretagne, secrétaire général et le Dr R. Braun, d'Allemagne, trésorier. Les participants étaient au nombre de 8,000 environ et représentaient 83 pays. Les représentants officiels de l'Association dentaire canadienne étaient le Dr Henri Brouillet, de Montréal, le Dr Gustave Ratté, de Québec et le secrétaire de l'ADC, le Dr W. G. McIntosh, de Toronto. Parmi les personnalités canadiennes qui participaient à ce congrès, on peut citer le Dr Don W. Gullet, de Toronto, ancien secrétaire de l'ADC, le brigadier B. P. Kearney, directeur général des Services dentaires pour les forces canadiennes et le Dr R. A. Connor, chef de la section de la Santé dentaire du ministère de la Santé nationale et du Bien-être social.

L'assemblée générale a établi le budget des dépenses dont le total se montera à £43,555 en 1968, ce qui, avec des recettes anticipées de £36,700, laisse un solde déficitaire, de £6,855. Ce budget fait suite à un autre déficit de £1,730 en 1966. Etant donné l'augmentation des coûts, la FDI augmentera le montant des cotisations de 50 pour cent, sur les trois prochaines années. La première augmentation, de 20 pour cent, entrera en vigueur le 1er janvier 1968. D'après le nombre de membres actuels, cette mesure devrait produire des revenus supplémentaires d'un montant de £2,916 en 1968. Le Comité directeur révisera aussi la structure de la Fédération en ce qui a trait à la souscription, au cours de l'année pro-

chaîne. Les résultats de cette étude seront transmis aux associations membres avant la réunion annuelle de 1968 à Varna, en Bulgarie, où l'Assemblée générale des délégués étudiera les propositions d'augmentation pour 1969 et 1970, à la lumière de ces conclusions. Dans d'autres domaines, l'Assemblée générale.

— a accepté l'invitation de tenir sa 58ème réunion annuelle à Bucarest (Roumanie) en 1970

— et a nommé Mexico comme le site du XVe congrès dentaire mondial en 1972.

La FDI a fait également une déclaration de principe sur les contre-propositions en ce qui concerne la fluoruration de l'eau et compte adopter de nouveaux principes directeurs à la réunion annuelle de 1968 pour établir des programmes d'éducation portant sur la santé dentaire.

Les premiers exemplaires d'un nouvel ouvrage *The Story of the FDI* ont été exposés au congrès de Paris. Ce livre raconte l'histoire de la Fédération, de 1900 à 1962, avec projection jusqu'en 1966. Il est possible de se procurer des bons de commande pour ce livre (prix \$7) auprès du Dr G. H. Leatherman, FDI secretary general, 64 Wimpole Street, London W.1, England.

La FDI se réunira en Bulgarie l'année prochaine

Le quartier général de la dentisterie internationale se trouvera sur le littoral de la mer Noire, lorsque la Fédération dentaire internationale tiendra sa réunion annuelle, la cinquante-sixième, en Bulgarie. Cette assemblée aura lieu dans une station balnéaire moderne, à Varna, du 17 au 21 septembre 1968.

Le programme scientifique de quatre jours aura pour thèmes principaux: le diagnostic des tumeurs buccales à leur début, les réactions des tissus buccaux aux prothèses et les méthodes de diagnostic en dentisterie.

Un programme social varié comprendra de l'opéra et des concerts, un dîner avec "Danse du feu", un bal masqué, les vendanges et une dégustation de vin, une chasse et une excursion en bateau sur la mer Noire. Il a été prévu également des

visites intéressantes au monastère de Rila, à d'anciennes villes et fortifications romaines et byzantines, à la Vallée des Roses et à la crypte Thrace, ainsi qu'à Odessa, Moscou, Leningrad, Athènes, Bucarest, Belgrade et autres villes.

Le voyage et les réservations d'hôtel seront la responsabilité de la Balkan-tourist, 1 Boulevard Lenin, Sofia, Bulgarie. Les formules d'inscription et celles pour les réservations d'hôtel étaient jointes à l'édition de la *FDI News Letter*, de juillet 1967.

La Société française de pédodontie organise une conférence à Paris le 18 novembre

La Société française de pédodontie organisera la "Première Journée d'Etude de Pédodontie" qui aura lieu le 18 novembre à Paris, au Centre de Conférences Internationales, avenue Kléber. Pour tout renseignement et inscription, écrire à M.

M. Schouker, secrétaire exécutif, Société française de pédodontie, 33 rue Poissonnière, Paris 2e, France.

Le "Jewish Memorial Hospital" offre des internats

Le "Jewish Memorial Hospital" de New York offre trois internats rotatifs successifs, du 1er juillet 1968 au 30 juin 1969. Le programme d'internat dentaire comprendra l'anesthésiologie, l'endodontie, la pédodontie, le traitement des patients difficiles et infirmes, la périodontie, la chirurgie buccale, la prosthodontie (fixe et amovible), l'orthodontie et la dentisterie opératoire. Les internes en dentisterie recevront un salaire de \$350 par mois, plus leurs repas, leur uniforme et leur entretien. Vous pouvez obtenir des renseignements supplémentaires et des formules de demande en écrivant au directeur de la dentisterie "Jewish Memorial Hospital", Broadway et 196th Street, New York, NY 10040, E.-U.

Les dentistes canadiens invités à New York du 4 au 8 décembre

Les dentistes canadiens ont été invités au 43ème Greater New York Dental Meeting,

qui se tiendra au Statler Hilton Hotel, à New York, du 4 au 8 décembre. Le programme scientifique de cette année comprendra 11 colloques, y compris un exposé d'une journée entière sur les implants par les Drs Michel et Raphael Cherchève de Paris. Les autres activités marquantes comprennent 22 essais, 24 cliniques enregistrées, 36 cliniques projetées, 40 démonstrations cliniques, 48 cliniques de table, 35 films cinématographiques et 256 présentations de nouvel équipement et fournitures, ainsi que les résultats des dernières recherches.

Pour les programmes et les réservations, veuillez écrire à Mrs. Mable Purdy, executive secretary, Room 106A, The Statler Hilton Hotel, New York City 10001, USA.

Deuxième colloque Dixie en Floride en janvier 1968

L'American Institute of Oral Sciences organisera le deuxième colloque dentaire Dixie à l'hôtel Diplomat West, à Hollywood, Floride, du 11 au 14 janvier 1968.

Ce colloque est à l'intention des praticiens dentaires qui veulent se tenir au courant des dernières découvertes dans les sciences fondamentales et cliniques. Il y aura ample opportunité pour des échanges de vue officieux et l'auditoire prendra part aux débats.

Les frais de participation sont de \$225 et comprendront les frais d'hôtel et de repas, ainsi que des avantages supplémentaires. Les dames sont invitées également et elles ne paieront qu'une somme nominale.

Vous pouvez obtenir des renseignements supplémentaires en écrivant au Dr S. N. Bhaskar, United States Army Institute of Dental Research, Walter Reed Medical Center, Washington, DC 20012, E.-U.

Organismes dentaires

L'Académie d'endodontie encourage les demandes d'adhésion

L'Académie canadienne d'endodontie a invité tous les dentistes canadiens à faire

partie de cette organisation à titre de membre actif ou de membre associé. L'Académie, qui est une section de l'Association dentaire canadienne, a été formée en 1964. Ceux qui aimeraient en devenir membre peuvent s'adresser au secrétaire, le Dr L. J. Rosen, bureau 20, 3465 Côte des Neiges, Montréal 25, P. Québec.

Un comité Ontarien va étudier la formation et les responsabilités des hygiénistes

Le Collège royal des chirurgiens-dentistes de l'Ontario a nommé un comité spécial pour étudier l'enseignement donné aux hygiénistes dentaires et leurs responsabilités. Le Dr T. H. Wachna de Windsor en est le président. Le mandat du comité est le suivant: (1) considérer les exigences actuelles du point de vue de l'éducation et des responsabilités des hygiénistes; (2) évaluer les changements éventuels à apporter aux programmes universitaires; (3) revoir les règlements du RCDS concernant les hygiénistes dentaires; et (4) faire un rapport sur les avantages que présenterait un accroissement de leurs responsabilités pour, le cas échéant, en suggérer la direction et préciser en quoi consisterait cet accroissement.

Le RCDS a invité les lecteurs de l'Ontario à faire part de leurs commentaires au Dr H. Wachna, 1500 Ouellette Avenue, Windsor, Ontario.

Facultés Dentaires canadiennes

La dentisterie va profiter de la construction d'un nouveau centre-santé

L'éducation dentaire va profiter de nouveaux édifices qui coûteront plus de \$69 millions et qui sont actuellement en construction dans les Universités de Toronto et de western Ontario. Ce projet comprend: L'édification à l'Université de Toronto, d'un ensemble de bâtiments destinés aux sciences médicales qui coûteront \$65 millions, couvriront 750,000 pieds carrés et seront terminées en 1969, et l'al-

location d'un subside de \$4,200,470, de la part du Gouvernement fédéral pour la construction d'un pavillon des sciences dentaires de \$8,430,000, à l'Université de Western Ontario, à London.

Expansion de la faculté du Manitoba

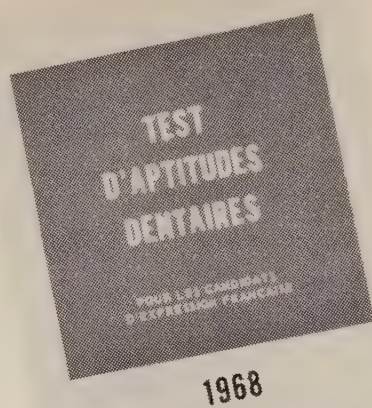
Un contrat de \$900,000 a été signé au mois de juin dernier pour la construction d'une annexe à la faculté dentaire de l'Université du Manitoba. Elle devrait être terminée au début de 1968.

L'annexe, qui couvrira 20,000 pi. ca., se présentera sous la forme d'un troisième étage ajouté aux deux étages de l'édifice existant, plus un quatrième étage pour abriter les animaux. Cette addition est destinée presque uniquement aux études graduées et aux recherches dans les sciences fondamentales et cliniques. Elle mettra fin à l'encombrement actuel et permettra l'inscription d'un nombre supplémentaire d'étudiants aux programmes gradués d'orthodontie, pédodontie, dentisterie restauratrice, matériaux dentaires, pathologie buccale et biologie buccale (biochimie et physiologie). La Faculté Dentaire ne compte pas augmenter le nombre des étudiants sous-gradués, mais à partir de l'automne 1967, les étudiants en hygiène dentaire verront leurs rangs s'accroître de cinq à 20 étudiants par an.

Brochures concernant les tests d'aptitude

L'Association dentaire canadienne a publié de nouvelles brochures en français et en anglais donnant les détails du programme de tests d'aptitudes dentaires 1968 de l'ADC. Ces tests s'adressent aux étudiants qui désirent entrer en première année dans les écoles dentaires canadiennes. Les brochures donnent tous les renseignements sur les exigences prédentaires, les cours d'études professionnelles, le programme des TAD, les dates des tests (le 5 ou 6 janvier et le 26 ou 27 avril 1968), la marche à suivre pour l'inscription, les centres de tests, les rapports et les droits d'inscription.

Le programme est sous la surveillance du Conseil de l'ADC pour l'enseignement.



ASSOCIATION DENTAIRE CANADIENNE

Les tests d'aptitudes dentaires qui sont exigés ou recommandés par toutes les facultés dentaires canadiennes aident à prédire le succès d'un candidat dans la profession dentaire. Les résultats des tests sont pris en considération avec tous les autres renseignements pertinents pour faire le choix des candidats au moment de leur admission à une faculté dentaire.

Il est possible de se procurer des brochures TAD en écrivant à Dental Aptitude Test Program, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Economie

Les médecins de l'Ontario et les chirurgiens-dentistes

L'Association médicale de l'Ontario s'est élevée contre les droits et les privilèges accordés aux chirurgiens-dentistes dont la formation est à leur avis limitée. Une communication de l'OMA au comité du Parlement de l'Ontario, qui s'occupe des

questions médicales, prétend que sept des opérations qu'exécutent les chirurgiens-dentistes aux termes de l'OMSIP (programme d'assurance de l'Ontario couvrant les soins médicaux) "appartiennent au domaine de la grande chirurgie" et "devraient être la responsabilité d'un médecin spécialiste". Ces opérations sont les suivantes: réductions ouvertes des fractures du maxillaire supérieur, réductions ouvertes des fractures de la mâchoire inférieure, intervention chirurgicale pour corriger la prognathie ou la micrognathie, condylectomie, blocage nerveux thérapeutique ou diagnostique par l'alcool, resection des nerfs mentoniers, infra-orbitaux ou dentaires inférieurs), et réduction ouverte de la luxation temporomaxillaire.

L'OMA propose une liste de 11 opérations qu'à son avis les chirurgiens-dentistes pourraient exécuter "avec l'approbation du Conseil médical consultatif sur la recommandation du chirurgien-chef de l'hôpital où l'opération aura lieu et sous le contrôle du chef du service de chirurgie." Ces opérations comprennent l'extraction chirurgicale des dents en place ou incluses, l'alvéoplastie et la gingivoplastie, l'approfondissement des replis muqueux et la reconstruction des crêtes, la mise à nu des dents pour traitement orthodontique, l'apectomie, l'incision et le drainage des abcès d'origine dentaire, la frénectomie, la biopsie intrabuccale, l'ablation des tumeurs bénignes intrabuccales, le traitement des infections de la bouche et de la mâchoire, et la réduction fermée des luxations temporomaxillaires. L'OMA a étayé sa demande de supervision médicale en citant une résolution adoptée le 16 janvier 1967, par le Collège royal des médecins et des chirurgiens du Canada. Cette résolution déclarait "que la chirurgie buccale, comme tous les autres types de chirurgie spécialisée, devrait dépendre du chef du service de chirurgie."

Les principaux points sur lesquels portent les critiques de l'OMA sont les suivants:

1. La section 1 (c) de la loi de l'Ontario régissant la dentisterie qui déclare que la "dentisterie . . . comprend . . . le traitement de [tout] état pathologique concernant directement ou indirectement les dents humaines, la mâchoire, la structure

ou le tissu environnant." L'OMA demande la signification de l'expression "la structure ou le tissu environnant."

2. La formation requise des spécialistes de la profession dentaire. La soumission de l'OMA déclare que "Le Collège royal des chirurgiens-dentistes" (sic) accorde un certificat de spécialité en chirurgie buccale après trois ans d'études postgraduées" alors que "Le Collège royal des médecins et des chirurgiens du Canada n'accorde de certificat de spécialiste qu'après un minimum de cinq ans d'études postgraduées." L'OMA soutient que ce double standard de spécialité crée des confusions pour tous ceux qui à l'hôpital ont la responsabilité d'accorder le droit d'opérer.

En 1965, les dentistes se placent quatrième dans l'échelle des revenus

Le revenu moyen des dentistes est de \$15,693, ce qui leur donne la quatrième place dans l'échelle des salaires, en 1965. Les chiffres publiés par le ministère du Revenu national placent en tête les médecins (\$23,220) suivis par les ingénieurs et les architectes (\$19,278) et par les avocats et les notaires (\$19,191).

Ces derniers chiffres semblent indiquer que l'écart entre les revenus des médecins et ceux des dentistes a tendance à s'accroître. L'index des prix aux consommateurs d'avril 1967 a révélé que pendant les six mois qui viennent de s'écouler, le coût des services médicaux a augmenté de 8.6 pour cent, alors que l'augmentation du prix des services dentaires était de 2.5 pour cent.

Est-ce que Medicare va ajouter \$420 millions au déficit fédéral?

Si toutes les provinces acceptent d'établir Medicare le 1er juillet de l'année prochaine, les dépenses annuelles du Gouvernement fédéral seront augmentées d'au moins \$420 millions. Et, si l'on croit le *Financial Post* du 19 août, Medicare pourrait coûter beaucoup plus cher.

C'est le problème auquel ont à faire face les administrateurs au moment de l'évaluation de leurs besoins financiers

pour l'année prochaine et c'est pourquoi lorsqu'il a estimé les dépenses, le ministre des Finances, Mitchell Sharp a laissé de côté toute la question des fonds pour Medicare.

Ottawa a accepté de payer aux provinces qui satisferont aux exigences de la législation gouvernant Medicare, 50 pour cent de la moyenne nationale, par personne, des coûts des soins médicaux. Cette année, Ottawa avait estimé que la moyenne des coûts se monterait à \$34 par personne, mais on croit qu'ils atteindront \$42 l'année prochaine. En 1969, ils seront certainement plus élevés encore, mais personne ne peut dire de combien.

Si toutes les provinces inaugurent ce programme à la date prévue, le Gouvernement fédéral devra payer \$210 millions au cours du deuxième semestre de 1968 et une somme plus élevée pour le premier semestre de 1969. Cependant, parce qu'on ne peut pas prévoir ce que seront les coûts par personne ou le nombre de provinces qui participeront en 1969, il est impossible de faire une estimation raisonnable des dépenses. En conséquence, conclut le *Financial Post*, Ottawa n'aura pas d'objection si la plupart des provinces décident d'attendre une autre année avant de participer à ce programme.

Le programme de santé publique dentaire du Nouveau-Brunswick est en difficulté

Depuis le début de l'année, le Gouvernement du Nouveau-Brunswick a fourni à quelque 32,000 résidents indigents, aux termes du plan d'assistance sociale du Canada, des services médicaux, dentaires et pharmaceutiques. Mais la phase dentaire du programme rencontre des difficultés. D'après le numéro du 8 juin du *Fredericton Gleaner*, un dentiste de Fredericton, le Dr R. H. Dolan, a accusé le ministère de la Jeunesse et du Bien-être du Nouveau-Brunswick de n'avoir pris contact avec l'Association dentaire du Nouveau-Brunswick qu'après ententes avec les médecins, les pharmaciens, les opticiens et les entrepreneurs de pompes funèbres. Aucun accord sur les honoraires n'a encore été conclu entre la société dentaire et le ministère, a-t-il déclaré.

En attendant cet accord, le ministère n'autorisera que ce qu'il appelle les soins d'urgence, mais cette notion n'a pas été définie. De nombreux patients assistés ne font savoir à leur dentiste qu'ils appartiennent à cette catégorie que lorsqu'ils ont été traités. Ils apprennent alors que le gouvernement ne paie que pour les soins d'urgence et pour rien d'autre, mais le dentiste n'est pas remboursé pour le reste.

Le ministère de la Jeunesse et du Bien-être du Nouveau-Brunswick a, paraît-il, déclaré que des négociations avec la société dentaire était en cours. Le gouvernement a demandé à la société dentaire d'accepter une échelle de tarifs réduits pour les assistés sociaux.

Plans dentaires envisagés pour la Colombie britannique

Le Dr W. M. Joiner, président de l'Association des services dentaires de la Colombie britannique, prévoit que les programmes d'assurance dentaire facultatifs représenteront un volume d'affaires de plusieurs millions de dollars d'ici cinq ans. Le dentiste de Vancouver a déclaré que déjà trois groupes d'employés de la Colombie britannique comprenant plus de 6,000 travailleurs et leurs familles bénéficient de programmes collectifs offerts par son organisation. On s'attend à l'adhésion de quatre autres, cet automne. Tout groupe homogène de 50 personnes ou plus est éligible pour ce genre d'assurance. Quatre-vingt-dix pour cent des dentistes de la C.-B. sont membres de la DSABC, qui est l'organisation provinciale des services dentaires.

Fluoration

Un Canadien sur quatre utilise de l'eau fluorée

Près de cinq millions (4,960,557) de Canadiens, dans 277 villes et villages, disposent d'eau fluorée, depuis le 1er janvier 1967. Ceci représente 24.9 pour cent de la population totale de notre pays et 36.6 de celle qui est alimentée en eau potable par tuyaux.

Les centres principaux, qui fluorent leur eau sont Toronto, Winnipeg, Ottawa, Windsor, Halifax, Saskatoon et Laval, P. Québec. La fluoration a été également approuvée à Hamilton et London, Ontario et à Edmonton, Alberta.

Les comprimés fluorés ont perdu de leur popularité à Calgary

Le Calgary Herald du 29 juin rapporte que deux Calgariens sur trois ne prennent pas la peine de faire renouveler leurs ordonnances pour des suppléments fluorés gratuits.

Un total de 12,477 ordonnances dentaires ont été rédigées depuis que le Service municipal de santé a inauguré ce programme, en novembre 1966. Chaque ordonnance prescrit aux enfants de moins de 16 ans des comprimés pour une période de trois mois. L'eau de Calgary n'est pas fluorée.

En dépit du manque d'enthousiasme de la part du public, le service de santé n'a pas l'intention d'interrompre ce service. Par contre, le Service de la santé publique du Saskatchewan a annoncé la suspension de son programme de comprimés fluorés en janvier dernier.

Recherche

Le microscope électronique révèle de nouveaux faits sur la maladie périodontique

Une étude au microscope électronique, sous les auspices de l'Institut national américain de recherche dentaire, a révélé des changements pathologiques non seulement dans les tissus conjonctifs qui relient les dents aux mâchoires, mais aussi dans le ciment des dents, dans les cas de maladie périodontique chronique chez les humains.

Afin de suivre en détail le processus destructeur qui résulte dans la perte de la dent, une comparaison a été faite des tissus conjonctifs normaux avec les tissus atteints par la maladie périodontique chronique.

Des dents ont été extraites de mâchoires

malades et de minces sections ont été préparées et examinées au microscope électronique. Ces sections montrent du tissu normal à la base des racines. Ici la plupart des fibrilles collagènes striées ont 500-800 angströms de diamètre et ne sont espacées que de 200-500 angströms. Les changements pathologiques se produisent dans la région de l'attachement épithéliale. Les premiers symptômes se manifestent à une certaine distance du ciment lorsque le nombre de grosses fibrilles collagènes striées diminue et que celui des petits filaments granuleux parsemés entre elles augmente. Au fur et à mesure que la destruction progresse, la distance entre les grosses fibrilles augmente de quelques milliers d'angströms et l'espace est occupé par des débris granuleux, alors qu'apparaissant en tas un grand nombre d'autres petits filaments granuleux. Parfois les grosses fibrilles sont faiblement striées et leurs extrémités sont effrangées, à moins qu'elles ne se désintègrent longitudinalement en filaments non striés. Éventuellement presque toutes les fibres disparaissent.

Normalement les fibrilles collagènes striées pénètrent dans la couche extérieure du ciment qui est très dense et a un aspect lisse. Cependant, au fur et à mesure que le tissu conjonctif fibreux de la membrane périodontique se détériore, il se produit également des changements dans le ciment. La couche de surface perd beaucoup de ses cristaux, ainsi que les fibrilles qui s'y rattachent et ressemble à une brosse. Les cellules épithéliales se séparent de la surface du ciment et éventuellement une couche de matériel homogène, qui est sans doute secrétée par les cellules qui sont attachées à l'épithélium, forme une cuticule entre la surface dure et l'épithélium, partout où le ciment est exposé aux liquides buccaux.

Le ciment, partiellement décalcifié, montre souvent un espacement uniforme des cristaux des os restants qui correspondent aux fibrilles collagènes disparues qui y étaient enrobées. Le ciment tend aussi à retenir plus de cristaux à la surface, que juste en-dessous, où l'on peut voir une désorganisation maximum sur une surface de quelque 18 microns de large.

Deux streptocoques cariogènes

Chez chacun des 450 enfants examinés à plusieurs reprises, sur une période de trois mois, des scientifiques dentaires ont trouvé deux sortes de streptocoques, l'un à une faible activité cariogène et l'autre à activité modérée. Un troisième type, très cariogène, n'a été détecté que rarement.

Plusieurs espèces de streptocoques humains, qui peuvent produire des caries expérimentales chez les hamsters, ont été isolées. Des trois espèces détectées tout d'abord, le type humain A (AHT), le plus destructeur, est deux fois aussi actif que le type humain B (BHT), qui, à son tour, a deux fois la puissance du troisième, le HHT. Les scientifiques ont fait des sondages épidémiologiques pour déterminer la relation de ces trois organismes et des caries humaines.

Les enquêteurs ont détecté la présence de BHT et de HHT chez tous les sujets, indépendamment de la quantité de caries, mais n'ont trouvé de AHT que dans une proportion de sept sur 19 pour cent, chez les sujets examinés. Cela suggère que ces organismes vivent habituellement dans la bouche, dans des conditions équilibrées et qu'un changement, dans l'alimentation par exemple, peut augmenter leur nombre et causer des caries.

Le streptocoque le plus actif, le AHT, n'a été recouvré que chez un sujet dans les trois examens faits à un mois d'intervalle. Peut-être ce microbe est-il difficile à recouvrer parce qu'il adhère aux dents de façon tenace et qu'il est peut-être localisé dans certaines parties des dents.

Pour déterminer le moment où commence la présence universelle des BHT et HHT, 50 nouveau-nés ont été examinés presque immédiatement après leur naissance jusqu'à plusieurs heures après avoir été nourris. Chez neuf d'entre eux, des organismes HHT ont été détectés, le premier jour après la naissance, le BHT a commencé à se manifester un mois plus tard et le AHT n'était pas présent dans ces premières cultures. Des prélèvements vaginaux sur les mères ont été négatifs de façon constante pour les trois organismes.

A cause de l'existence d'autres espèces de streptocoques humains, sérologique-

ment différents des trois premiers, et qui ont produit des caries chez des rats gnotobiotiques, on a prévu des tests sérologiques pour détecter leur présence. Ces recherches, qui se font sous les auspices de l'Institut national américain de recherche dentaire, sont en cours à l'école de médecine de l'Université de Miami.

Distinctions honorifiques

Le **Dr Gustave Ratté** de Québec vient de recevoir une médaille de la ville de Paris. D'autres dentistes éminents ont reçu cette même médaille à l'occasion du congrès de la FDI, qui vient de se tenir à Paris. La cérémonie eut lieu, le 7 juillet, dans l'un des somptueux salons de l'Hôtel de Ville. Au moment de la remise des médailles le vice-président du Conseil municipal de Paris déclara que les citoyens et les représentants officiels de Paris désiraient honorer les membres éminents de notre profession qui, par leur connaissance de la science dentaire, leur dévotion à l'intérêt public et leur personnalité distinguée ont acquis une réputation qui dépasse les frontières de leur pays d'origine.

La ville de Paris a décerné une médaille au Dr Gustave Ratté, de Québec. Le vice-président du Conseil municipal la lui a remise à une cérémonie qui eut lieu à l'Hôtel de Ville de Paris, le 7 juillet.

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Rapport trimestriel

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HERITAGE

1867/1967

On this, the hundredth anniversary of our Confederation, we recount the story of some of Canada's pioneer dentists. Those that we discuss here belong to that blessed elite who dig a tunnel through the pages of history toward the splendour of achievement. Tantalizing glimpses of the past reveal to us the qualities of courage and tenacity which lie at the root of their accomplishments. These attributes are still thoroughly relevant in a world awed by nuclear threats and seething with bitter passions. They inspire pride in the legacy that we inherited from such hardy pioneers. It is therefore timely to review their contribution, not only to dentistry and science, but to the greater march of progress and civilization across Canada.



A l'occasion du centième anniversaire de la Confédération, nous relatons l'histoire de quelques-uns des premiers dentistes du Canada. Ceux dont nous parlons ici représentent l'élite qui s'est taillée une place dans l'Histoire par la magnitude de ses réalisations. Ce retour en arrière révèle les qualités de courage et de ténacité qui ont été la raison principale de leur succès. Ces attributs gardent toute leur valeur dans un monde menacé de destruction atomique et déchiré par d'amères passions. Nous sommes fiers de l'héritage que nous ont laissé ces vaillants pionniers et le moment nous semble tout indiqué de reconsidérer la contribution qu'ils ont apportée, non seulement à la dentisterie et à la science en général, mais à la marche du progrès et de la civilisation dans tout le Canada.





RÉSIDENCE DU GOUVERNEUR GÉNÉRAL
OTTAWA

Aux membres de l'Association dentaire canadienne et aux lecteurs du présent numéro spécial du Journal de l'Association, je présente mes félicitations et mes vœux les meilleurs à l'occasion de l'année de notre centenaire.

L'art dentaire, au Canada, date d'avant la Confédération; mais d'après les documents disponibles, tout le pays, en 1846, comptait à peine dix ou douze dentistes. Dès 1854, le Dr S. Blodgett, de Brockville, lançait une publication qui avait pour titre The Family Dentist, et en 1858, les Drs Paine et Macallister publiaient The Journal of the Times, à Halifax. Même à cette époque coloniale, les dentistes, dans ces régions qui allaient bientôt devenir le Canada, manifestaient l'instinct des pionniers, le goût de la recherche et du progrès, et la fidélité aux idéaux de leur profession qui ont marqué depuis lors l'art dentaire au Canada.

Les associations dentaires du Canada ont cultivé et encouragé l'art et la science dentaires, elles ont rehaussé les normes éducatives de leur profession à un niveau élevé, appuyé les recherches en art dentaire, et puissamment contribué à l'éducation du public en matière d'hygiène de la bouche.

Les Canadiens sont reconnaissants envers les dentistes du pays de leur grande compétence et les estiment dignes de leur confiance. Au moment d'entreprendre le second siècle de notre histoire, je ne doute pas que votre science et votre profession vont progresser, au même rythme que le reste du Canada, dans des voies que personne aujourd'hui ne peut prévoir. En tant que représentant de Sa Majesté, je vous remercie de votre contribution à la santé des Canadiens dans le passé, et vous souhaite un avenir des plus brillants.

Automne 1967

Roland Michener



GOVERNMENT HOUSE
OTTAWA

To the members of the Canadian Dental Association, and the readers of this special issue of the Association's Journal, I send my greetings and good wishes for their enjoyment of our Centennial Year.

Looking back, we find that dentistry in Canada predates Confederation, but, according to available records, there were no more than ten or twelve dentists in the whole of Canada in 1846. As early as 1854 Dr. S. Blodgett of Brockville launched a publication called The Family Dentist and Doctors Paine and Macallister produced The Journal of the Times in Halifax in 1858. Even in these early colonial times, the dentists of what was soon to become Canada showed pioneering instinct, an interest in the improvement of their science, and a lively regard for the ideals of their profession, all of which have marked Canadian dentistry in the years which followed.

Dental associations in Canada have promoted the art and science of dentistry, raised the level of professional education, supported dental research, and helped immeasurably in educating the public in oral hygiene.

Canadians are grateful for the qualifications and reliability of the Canadian dental profession. As we enter upon a second century I have no doubt that your science and profession will progress with the rest of Canada in a way which none of us can foresee today. As Her Majesty's representative I thank you for your contribution to the health of Canadians in the past, and wish you well for the future.

Fall 1967

Roland Michener

A proud look backward

The centenary of Canadian Confederation occurred on the first of July, 1967, and Canadians are now celebrating Canada's hundredth birthday. In its posters and advertisements the Centennial Commission has suggested a number of ways in which they can commemorate the great event. They can, the Commission points out, fly flags, plant memorial trees, have family reunions, explore Canada, visit Expo 67 and do a great variety of other things, simple or elaborate, which will show their pride and delight in their native country. All these are suggestions of things to plan and things to do. They mean action. But the centenary also invites thought. The word commemoration means the proud and grateful remembrance of things past. As the Centennial Commission reminds us, this is not only a time for joyous activity; it is also a time for reflection. It is a time to look back on the achievements of the past hundred years and to remember the men and women who made these achievements possible.

Now, Canadians are not much given to remembering their past. They are not as historically minded as the English and they have not been as rigorously trained in their history as the Americans. They do not often think of what they have gone through; they very rarely recall it with much pride. Canadians are, in fact, as little likely to boast about their history as any people on earth. It used to be said — one wonders how much truth there is in the saying nowadays — that the national habit of the English is understatement; it might perhaps be said with equal or greater truth that the national habit of Canadians is self-depreciation. We usually play down things Canadian; we often run them down — frequently, it seems, simply because they are Canadian. We forget, or are ignorant of, or disparage, our own achievements. We are not even sure of our collective identity as a people; and we are embarrassed and tongue-tied when somebody asks us what Canadianism means and why we maintain ourselves as a separate nation in North America. We forget to make the obvious, and the completely satisfactory reply, that we are a separate nation because we want to be a separate nation and that we do not need to explain ourselves to outsiders in order to justify what is the strongest impulse of our collective being.

The coming of the centenary ought, if only for a while, to release Canadians from this ingrained habit of underrating themselves and

undervaluing what they stand for. For once, in a way, they have the best of reasons for stopping this endless business of explaining themselves away and apologizing for their existence. This is indeed a moment in which they ought to feel impelled to stand up and cheer. They can look back, with gratitude, on the reality of their success and the solid body of their achievement. They can recount, with pride and satisfaction, the long record of a hundred years of effort and accomplishment. They can feel, first and most important of all, a joy in what their nation as a whole has done and achieved. This is a feeling which we all share simply as Canadians, as loyal citizens of the country called Canada. It is the first sentiment, the primary sentiment, that the centenary will evoke; but it is not the only way in which our satisfaction will be expressed. Pride in the nation and its record will be common to all of us; but, in addition, for each Canadian there will be some aspect of national growth, some thread of national development, that will be especially dear.

Canada, we scarcely need to be reminded, is a vast country with a great variety of environments and a good deal of social and cultural diversity. Canadians, like the citizens of any modern, complex, industrial country, carry on an enormous number of different enterprises, employments, and professions. As a result, almost every Canadian has a special part of the national landscape; a special interest — economic, political or cultural; a special talent or vocation to which he is particularly attached. The coming of the centenary will move some people to celebrate the growth of a particular town, the improvement of a particular community, or the expansion of a particular business. It will inspire others to dwell with pride on the record of Canadian accomplishment in the arts, the sciences, and the professions. The men who have built up and maintain the health services of Canada have much to commemorate; and among them, with their own good reasons for pride, are the Canadian dentists.

2.

As Canadians and citizens of a young and rapidly growing country, we have a great deal to celebrate. For a century we have expended an enormous amount of energy and ability in building up this country; and we have achieved a remarkable measure of success. The task of making Canada a nation has not been an easy one. It was a very formidable undertaking to build up another transcontinental federation on a continent which was certain to be dominated by such a super-power as the United States. If we had made the attempt alone, we should almost certainly have failed. We succeeded only because we

maintained the connection with Great Britain, and because we were able to rely on British arms, British diplomacy and British capital to redress the balance of power on the North American continent. Our membership in the British Empire-Commonwealth — a membership which so many people nowadays foolishly write down as a sentimental association only — gave us in reality the strength which enabled us to survive as a separate and autonomous nation on the North American continent. It saved us during the nineteenth century; but in the twentieth, it has gradually lost some of its supporting power as Great Britain's influence in world affairs has declined and the character of the Commonwealth has altered. We can no longer depend on outside aid. We must rely on ourselves; and in a post-war world dominated by a few great powers, including particularly the United States, we have found it increasingly difficult to keep control of our own national policies and to maintain our national identity.

The presence, the immediate proximity, of the United States has been both a great benefit and a great disadvantage to us. We have an inevitable tendency to accept American standards, copy American techniques and import American capital; and these limitations and borrowings make it harder for us to develop our own initiative and express our own individuality. Canada is a part of the North American continent. Foreigners cannot help associating and comparing it with the United States; and it is not surprising that to many people it suffers by comparison with such a populous, prosperous and powerful neighbour. For generations, even for centuries, the great American republic captured the imagination of the western world. To the people of Europe and Great Britain, the United States appeared, above every other country in the new world, to be the land of hope and opportunity. For decades the immigrants who might have come to Canada went instead to the United States. For decades native-born Canadians followed them across the border into the republic. During much of the early history of Canada we lost more than we gained through the migration of people in the western world. We found it hard to build up population and to retain loyalties.

There have been a great many difficulties and some very powerful distractions. The business of nation-building in the northern half of the North American continent has been hard work. But we have come a long way and done a great many things in the century that has elapsed since 1867. The three and a half million people who woke to greet that first Dominion Day have grown into nearly 20 million. The original little group of colonies on the Atlantic seaboard and the

St. Lawrence and the Great Lakes — Nova Scotia, New Brunswick, and the United Province of Canada — has now become a large company of 10 provinces and two territories, stretching "from sea to sea and from the river unto the ends of the earth." The railway enabled us to people the western plains; the aeroplane has helped us to exploit the north. The first Canadians knew that their country was richly endowed with agricultural land and fisheries and forest resources; but they had no conception of the wealth their descendants would find in the oil and gas of the Prairies, the minerals of the Precambrian Shield, and the water power of our turbulent northern rivers.

Canada is one of the luckiest nations in the world. It grew up in seclusion, remote from most of the conflicts of the nineteenth century. The only war it fought for survival — the war of 1812 — is far away in the past. Brought up in peace and able to devote all their energies to peaceful pursuits, Canadians are and have been an unmilitary people. They have fought superbly in two world wars; but in each case peace brought them gladly back to the homeland and their old familiar pursuits. The nation has not sought aggrandizement or power, and only very infrequently has it exerted much influence on world politics. Instead, Canadians have busied themselves with their own affairs. They have attained a high level of material prosperity; they have maintained public order and tranquillity; they have held to fine standards in education, professional conduct and personal restraint; they have begun to express themselves in literature, the arts and the theatre. And through all this, they have been well served by those trained and dedicated people — including the dentists — who have ministered to their physical well-being.

3.

It was in the first half of the nineteenth century that the art and science of dentistry began to acquire the status of a profession. During the 1840's the first school of dentistry, the first national dental organization, and the first dental publication were founded in the United States. At the same time the English dentists were growing increasingly eager to gain professional standing and legal recognition for their practice; but it was not until late in the decade of the 1850's that they began to attain their objectives. The British North American provinces which, of course, had not yet been united in the federal union of 1867 were still further behind. In 1839-40, when the American dentists were making their spectacular advances, the British American provinces were just emerging from the pioneer state of development. They had ceased to be true frontier colonies; but they

had acquired few of the specialized arts and sciences of settled western societies. The older professions — law and medicine — were solidly established; but dentistry had yet to be granted recognized status, though a vain attempt was made in the 1840's to achieve incorporation in Canada East, the future Quebec. The number of British Americans who thought dental care essential was probably quite small; and there were few practitioners to look after them. There may have been only a dozen or so dentists in British America in the middle 1840's.

The public recognition and formal organization of the dental profession in Canada really begins with Confederation. Like the nation itself, Canadian dentistry is one hundred years old. During the 1850's and early 1860's there had been an enormous and rapid growth in British America as a whole, and particularly in the Province of Canada, a province which had been formed by the union of Upper and Lower Canada and was to be divided at Confederation into Ontario and Quebec. In the towns and in prosperous farms and seigniories across the countryside a cultivated and, indeed, sophisticated society was rising out of the simple rural communities of the past. There was much more concern for human health and welfare than there had been before. The proprietors of patent medicines, which were marketed in great variety and with the most astounding claims, traded upon this natural human anxiety; but, at the same time, the real needs of the people were being satisfied with increasing effectiveness by a rapidly growing number of medical and dental practitioners trained in the best science of the day. The dentists, many of whom got their training in the new schools in the eastern United States, began to multiply in the big and smaller towns across British America. On the eve of Confederation, there were approximately 175 dentists in Canada West, the future Ontario.

The new era in Canadian dentistry began with Confederation. It began, in fact, a little before Confederation, for in January 1867, at the suggestion of Dr. B. W. Day of Kingston, a number of dentists met in Toronto and organized the Ontario Dental Association, the oldest dental association in Canada. The main purpose behind this move was obvious: the dentists wished to provide organized support in favour of the legal recognition of their profession in Ontario; and in 1868, when the provincial legislature in its first session passed an act incorporating the dental profession under the name of the Royal College of Dental Surgeons of Ontario, their first and most important objective had been achieved. In the very next year incorporation followed in the Province of Quebec. Public recognition had been

granted; but public recognition demanded in return more systematic dental training and wider dissemination of new knowledge and techniques. The dentists set themselves to supply both. Already, in 1868, Dr. W. George Beers of Montreal, one of the most distinguished of Canada's early dentists, had begun the publication of the *Canada Journal of Dental Science*. And, in 1875, the first permanent dental school in Canada, known as the Royal College of Dental Surgeons, was established at Toronto.

The foundations had been laid. The slow process of building upon them began. Obviously the dentistry of those early years was very different from the dentistry of today. Formal dental education was only beginning; standards and practice varied greatly; and technology had yet to make its great contribution to dental art and science. No doubt there were other Canadians who had to undergo something like the unfortunate experience which Sir John A. Macdonald, the Prime Minister of Canada, recorded in a letter to his friend, Alexander Campbell in December 1871. "I have had a run of ill luck," Sir John wrote. "No sooner was my quinsy got rid of, than I was obliged to go to the dentist, who so bedevilled my mouth that I have had to be lanced and probed and blistered." One cannot help wondering what kind of dental care would have required such drastic remedies!

4.

It is a long time since the early Confederation years. It is a far cry from 1871 to the methods of today. The science and art of dentistry have been progressively improved and refined; dental standards have been elevated and great progress made in dental education. By 1893 the profession which first received public recognition in Ontario had been given legal standing in all the older provinces; and the two new provinces of Alberta and Saskatchewan, in the first sessions of their legislatures, granted the same status. The long process of formal organization was completed on a national scale when, in 1902, the Canadian Dental Association was founded. Representatives from all the provinces sat on its Board of Governors. It is the profession's national policy-making body. Its aims are to promote and develop the art and science of dentistry, to maintain and elevate high standards in education and professional conduct, to encourage research and disseminate knowledge and to educate the public in habits of dental hygiene. In 1934 the Association assumed the sponsorship of the professional journal of Canadian dentistry when the *Dominion Dental Journal*, which had been edited for many years by Dr. Beers and Dr.

A. E. Webster, was replaced by the *Journal of the Canadian Dental Association*.

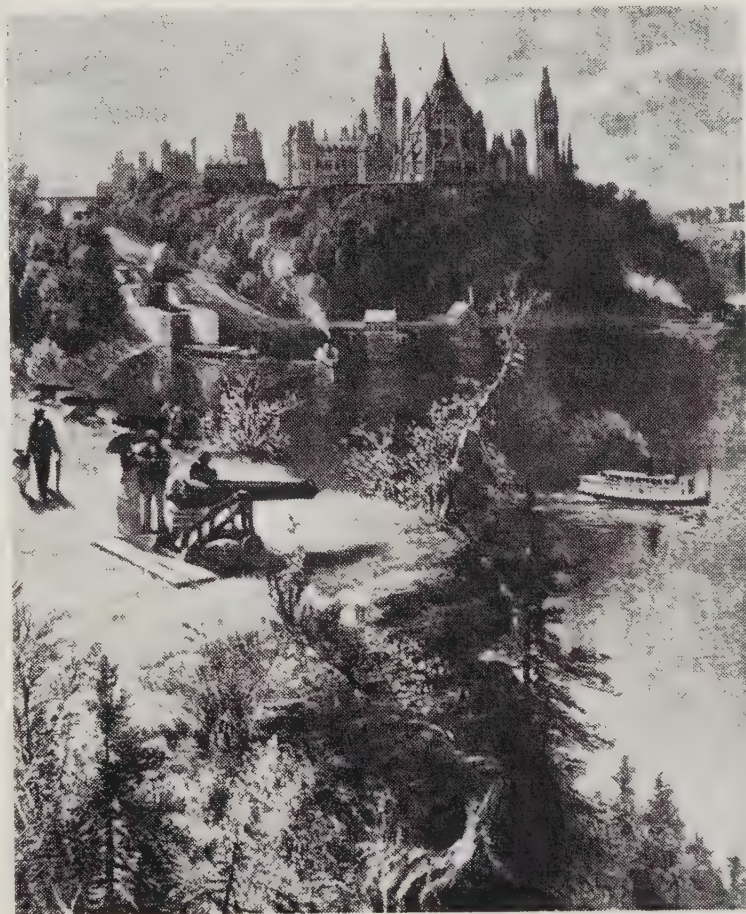
Education and research have been of basic importance in the growth of the profession. Apprenticeship, which formed a significant part of dental training in early days, gradually disappeared and academic instruction became the sole way to professional accreditation. As in the United States, the dental schools in Canada have almost from the beginning been closely associated with Canadian universities and the profession has gained in various important ways from this close relationship. In 1888 the Royal College of Dental Surgeons at Toronto became affiliated with the University of Toronto; and, of the two dental schools which were organized in the Province of Quebec during the first decade of this century, one was connected with McGill University and the other was attached first to Laval University and then to the Université de Montréal. The Maritime Dental College, the last dental school to be founded before the first world war, began its career in close association with Halifax Medical College and Dalhousie University; and four years later, in 1912, it became a faculty of that university.

Status as a separate university faculty was the final achievement in dentistry's long struggle for professional and scientific recognition. The three older dental schools, at Toronto and Montreal, became faculties of their respective universities in the period 1920-25; and the first western school, which began instruction in 1918 at Edmonton, was made a faculty of the University of Alberta in 1942. These five original faculties of dentistry — one in the Maritimes, one in the west, and three in central Canada — continued, without any addition to their number, to supply dentists to the Canadian nation for a long time after the second world war. Eventually, however, the enormous post-war growth of the Canadian population produced a demand for dental services which the existing dental schools could simply not supply. The establishment in 1958 of a faculty of dentistry in the University of Manitoba was the first response to this serious situation; and four years later the opening of a dental school at the University of British Columbia began to meet the urgent need on the Pacific coast. Since then a faculty of dentistry has been created at the University of Western Ontario, and one is announced for the University of Saskatchewan.

The men whom these institutions have trained, and will train, are certain to play a part of increasing importance in the life of the Canadian people. They have taken their full share of responsibility

for the health and welfare of Canadians in time of peace; and in two world wars, through the work of the Royal Canadian Dental Corps, they have helped to maintain the well-being of the armed forces at home and abroad. In the century that has now ended they have seen their profession acquire a new academic status, and a new dignity and usefulness in the community. As much as any profession or trained service in this country, they have their own special reasons for joining in the jubilation of 1967. As Canadian dentists, as well as Canadian citizens, they can look backward at the past with pride.

D. G. Creighton



Une vue souhaitable de l'avenir: la nationalisation du français

S'il fût un temps où de savantes exégèses pouvaient mettre en doute la place et le rôle de la langue française au Canada, ce temps semble irrévocablement révolu. Personne, il nous semble, ne voudrait aujourd'hui contester au français son droit de cité au parlement fédéral et dans les tribunaux de juridiction fédérale à travers le pays. Personne non plus se refuserait à reconnaître que le français est la première des conditions d'existence de la communauté francophone du Canada et qu'il constitue ni plus ni moins que la marque fondamentale du particularisme québécois. Mais il reste que les Canadiens dans leur ensemble ne voient pas assez clairement, ni le fait que le français constitue la caractéristique première de leur identité nationale, ni le rôle spécial que pourrait jouer le français dans le salut et l'avenir politique du Canada.

C'est une chose de constater que le français se parle au Canada et qu'il est la langue maternelle de près de 30 pour cent de la population canadienne; c'en est une autre de faire en sorte que le français puisse contribuer au maintien et au renforcement de l'édifice national. On admettra facilement que les droits inaliénables du français sont inscrits dans l'article 133 de l'Acte de l'Amérique du Nord britannique (AANB). On souscrira volontiers à certains progrès du français dans la vie publique canadienne et on se résoudra à la limite à son emploi, partout au pays où la situation l'exige. En revanche, on sera d'emblée porté à cantonner la langue française dans son rôle culturel. A vrai dire, on ne songera guère au français lorsqu'il sera question de langue utile au Canada. Dans la mesure où on aura applaudi à des mesures dites de bilinguisme, dans cette même mesure on considérera la vitalité du français avec circonspection.

Lorsqu'on y regarde de près, de tels réflexes reflètent à n'en pas douter le défaut de comprendre qu'une langue suppose une culture dont elle n'est que l'expression la plus courante. Ils traduisent en outre le refus de l'idée même que la culture d'expression française au Canada peut apporter une contribution valable au développement du patrimoine national. Or, ce qui est plus grave, ces attitudes paraissent aussi condamner sans rémission la thèse selon laquelle l'unité du pays exige que la grande majorité des Canadiens, tant de langue anglaise que de langue française, considèrent le français comme l'une des deux langues nationales du Canada.

Langues nationales — Il est significatif que l'utilisation du terme "langue nationale" ne soit pas courante au Canada. La raison en est bien sûr que les Canadiens ne réussissent pas à s'entendre sur le sens du mot *nation* lui-même, ni sur l'à propos de telle ou telle définition qu'on en pourrait donner. Parmi les Canadiens d'expression française du Québec, d'aucuns prétendront que le français est la langue nationale de la seule nation canadienne-française. Mais ceux qui sont portés à rejeter cette affirmation, et la plupart des Canadiens d'expression anglaise, auront par contre la tentation de soutenir que l'anglais est présentement la seule langue nationale du Canada. Or, si au lieu de sa signification purement sociologique on attribue au mot *nation* sa signification politique, qui est celle d'un pays ou d'un Etat pleinement souverain, il nous faut bien admettre que les uns et les autres ont également tort, bien que pour des raisons diverses. D'une part, tant et aussi longtemps que les francophones du Canada seront citoyens canadiens, il ne saurait faire de doute que le français peut être appelé à devenir l'une des langues nationales de ce pays. D'autre part, compte tenu de la portée limitée de l'article 133 de l'AANB en ce qui concerne le statut de l'anglais, il est pour le moins présomptueux de considérer formellement celui-ci comme langue nationale au Canada. Mais on comprend facilement qu'à l'appellation langue nationale, les Canadiens préfèrent celle de "langue officielle" qui, pour s'appliquer au français et à l'anglais, n'en reste pas moins singulièrement imprécise.

Langues nationales et langues officielles. — La distinction formelle que l'on fait parfois à l'étranger entre "langue nationale" et "langue officielle" n'est jamais gratuite. Elle ne tient pas d'abord non plus à la sémantique. Au sens strict du terme, une langue nationale est une langue dont on a reconnu officiellement qu'elle est la ou l'une des langues d'un pays. Une langue officielle, au contraire, est toujours une langue jouissant d'une protection juridique particulière qui en assure l'utilisation dans les rapports que peuvent avoir, à l'intérieur d'un pays donné, les citoyens avec les autorités publiques. Une langue peut être officielle à un degré plus ou moins grand, mais elle est nationale ou elle ne l'est pas. Lorsqu'une langue est pleinement officielle, elle est bien sûr *ipso facto* langue nationale; mais toute langue nationale n'est pas forcément langue officielle. Ainsi en Suisse, le romanche est-il langue nationale mais non pas langue officielle, de par la Constitution. Ce qui implique que les Suisses dont le romanche est la langue maternelle, représentant moins de 1 pour cent de la population, n'ont pas, en ce qui concerne l'usage de leur langue, des droits égaux à ceux de leurs concitoyens de langue allemande, de langue française ou de langue italienne.

L'allemand, le français et l'italien sont en effet langue nationale et langue officielle en Suisse tandis que le romanche, lui, n'est que langue nationale. Mais qu'à cela ne tienne puisque les Suisses de langue romanche peuvent, par la reconnaissance officielle accordée à leur langue dans la constitution helvétique, davantage s'identifier à leur pays ou à leur patrie qu'ils ne pourraient le faire si la langue romanche ne jouissait d'une telle reconnaissance officielle à l'échelle nationale. Et ce qui vaut pour les Suisses de langue romanche vaut naturellement *a fortiori*, pour les Suisses de langue française, dont la langue est aussi l'une des langues nationales de la Confédération helvétique.

Une nationalisation. — Si le français peut être en Suisse l'une des langues nationales, et qu'il en est de même en plusieurs autres pays dont le Mali, le Cameroun, le Cambodge et le Laos, on voit mal ce qui en principe pourrait s'opposer à ce que le français devienne un jour l'une des langues nationales du Canada. Encore faudrait-il d'abord que les Canadiens eux-mêmes en éprouvent le besoin, sinon la nécessité. Et qu'au départ à tout le moins, un certain pressentiment les poussent dans cette direction. Pour le reste, ils n'auront qu'à approfondir la réalité politique canadienne et à s'interroger pour savoir ce qui, en 1967, ne tourne pas rond dans les rapports entre les deux principales communautés linguistiques du pays. Ils n'auront qu'à se demander aussi si ce qu'on a appelé le sentiment d'aliénation des Franco-Canadiens n'a rien à voir avec le statut qui est celui de la langue française au Canada. Peut-être pourront-ils comprendre, à la réflexion, qu'au niveau de la psychologie collective, on ne saurait beaucoup tarder à inscrire dans ce qui nous tient lieu de Constitution, l'Acte de l'Amérique du Nord britannique, ou dans tout nouveau projet de constitution que pourraient avoir les Canadiens, une déclaration selon laquelle le français est l'une des deux langues officielles du Canada. Puisque le moins que l'on puisse souhaiter de l'avenir, en cette année du Centenaire de la Confédération, est que l'on procède à brève échéance à la nationalisation de la langue française au Canada.

Gilles Lalonde



The gift of laird of Kinloch

Thanks to the generosity of one of its native sons, the town of Shelburne, Nova Scotia, now possesses a unique children's dental clinic — the Doctor Gurdon Robert MacKay Memorial Hospital for Children (Dental Clinic) which was officially opened on September 26, 1951.

Dr. MacKay spent most of his life in the city of Boston, Massachusetts. Yet it was bequests in his will, and that of his wife, that made possible the founding of the clinic.

What motivated Dr. MacKay in making the bequests? Was it perhaps a manifestation of the pride he felt in the Clan MacKay's long tradition of service to the community? With an unbroken record of valour stretching back into the dim recesses of time, the loyalty of the MacKays to the places where they were born or had found shelter has long been an integral part of that tradition. Since Shelburne is remembered as the place where the North American branch of the clan first became established it must certainly have played a part in influencing Dr. MacKay and his wife in making the bequests.

The origins of the clan have been traced back to the time of the Norwegian raids on the Scottish coasts. The first chief to be mentioned in written records was Angus 'the dark complexioned' who opposed Donald of the Isles in a campaign he was waging for the Earldom of Ross. MacKay made his stand at Dingwall and was defeated and taken prisoner but later released. In 1415 Donald sought the allegiance of the MacKays in a peaceable manner by offering Angus the hand of his daughter in marriage and granting lands to him by charter.

Throughout those turbulent years the MacKays dispatched frequent military expeditions overseas and were also involved in interminable border disputes with their neighbours. As zealous supporters of the Reformation, the clan battled for the Protestant cause. One army went to the assistance of the King of Bohemia and on his death entered the service of Gustavus, King of Sweden.

In 1627, for supporting Charles I, Donald MacKay was raised to the peerage and given the title 'Lord Reay.' But subsequently the MacKays again strenuously contended for the Protestant succession and one member of the clan, Hugh MacKay of Scourie, commanded the troops of William of Orange against the Highlanders at Killiecrankie in 1689.

Not all the battles in which the clan was engaged were fought to a successful conclusion. Campaigns in Scotland, Ireland and on the continent of Europe so impoverished the clan that in the early part of the 19th century the then Lord Reay was compelled to sell the country of the MacKays to the Duke of Sutherland. As a result of this action many members of the clan emigrated and among those who left their native land were two brothers, William and Robert MacKay. William arrived in Shelburne, Nova Scotia, in 1803 and Robert followed him 13 years later.

Shelburne is a town that has had a very chequered history; it began as nothing more than a clearing in the wilderness, rapidly became a boom town, then almost disappeared entirely.

The area was first settled by Loyalists who arrived just after the close of the American Revolution. Rather than live in the United States they elected to leave their homes and flee to those parts of North America that had remained under the British flag.

There were no hospitable houses at Shelburne to welcome the wanderers — just unbroken forests. But within two months of the arrival of the Loyalists the division of land had begun and an ambitious new town had been established. The wide streets of Shelburne were not developments of Indian trails; competent engineers laid them out at right angles to each other using a plan of Philadelphia as a guide.

Three years later log huts had replaced tents and the fact that newspapers were already being published is an indication of the rate of growth of the new town in its earliest days. Land was cleared, crops were planted, boats were built for the fishing industry and a whaling company was formed.

But the bright promise of those early years was never fulfilled. Halifax, with only a third of Shelburne's 10,000 population, became a serious rival. The soil near Shelburne proved poor for farming and gradually the more ambitious settlers began to leave the town and move inland seeking more hospitable country.

However, not all the settlers were disillusioned. When Robert MacKay, who had been a schoolmaster in the highlands of Scotland, arrived at Shelburne he liked what he saw. He was 23 years of age when he travelled inland on horseback, following the Roseway River in search of a place to establish a home. Riding along Indian and game trails he eventually arrived at a series of lakes about 14 miles from the mouth of the river. Between two of the lakes was a hill covered with oak, pine, hemlock and birch and it was there that he decided to settle.

At first his holdings covered 160 acres, but at a later date they were extended into the back forests. He named the homestead Kinloch after a place in his native Scotland near where he had been born.

In 1817, assisted by his wife, Janet, he cleared part of the forest and built a log cabin. Together they laid out an apple orchard and a garden and built a stone wall to enclose them — a massive structure, parts of which are still standing to this day. So the Nova Scotia branch of the Clan MacKay became established.



Florence Lydia MacKay

Gurdon Robert MacKay

Other settlers who had elected to stay in the area began to build homes along the banks of the Roseway and soon it became possible to push a road through the forest from Shelburne. This permitted the use of ox teams instead of the pack horses that had formerly been the only means of transportation.

One of the children of Robert and Janet MacKay was James MacKay, the father of Gurdon Robert MacKay who was born on January 16, 1864.

Gurdon Robert MacKay spent most of his early life at Kinloch but when he was 18 years of age he moved to Shelburne and two years later went to the United States. He entered the Philadelphia Dental College and in 1888 graduated with the degree of Doctor of Dental Surgery.

For the first two years after graduation Dr. MacKay practised his profession in Union City, Pennsylvania, but as he gained experience he realized that to become more proficient he would have to move to a larger city which would afford him the opportunities he needed to develop his skills.

In 1890 he established a practice in Boston and it was there that he met, and three years later married, Florence Lydia Brown. Mrs. MacKay, who was eventually to play a key role in the establishment of the dental clinic, was born in Boston on October 23, 1867 of old New England stock.

Dr. MacKay gradually achieved considerable prominence in Boston as a knowledgeable and skilled dentist and he was invited to become a trustee and member of the executive committee of the Forsyth Dental Infirmary for Children. It was a position he was to hold for more than 40 years and his appointment may well have been the spark that aroused in him the sympathetic interest in the welfare of children that was to last throughout his life and continue to manifest itself even after his death.

When his father died in 1908 Dr. MacKay was called upon to act as executor and administrator of the family estate — a task he discharged with care, sympathy and understanding. Shortly afterward he bought a house in the town of Shelburne on high land overlooking the town and harbour. Quiet, and comfortably furnished, it became a vacation home in which he and his wife were to spend most of the summer months for the next 20 years.

When he acquired the house, Dr. MacKay's intention was that it serve a double purpose. He and his wife lived in it for most of the summer but during the winter it was used by his mother and his sister Cassie, who normally lived at Kinloch, permitting them to be nearer their friends in Shelburne.

For many years this arrangement proved highly satisfactory to all concerned but in 1928 Dr. MacKay's mother died and thereafter the house remained closed during the winter. However, it continued to serve as a summer home.

Like most of his forbears, Dr. MacKay was an avid sportsman. He was a good shot and an expert fisherman. Even in his 75th year he

was still enthusiastically fishing the waters of Nova Scotia rivers with a fly rod, exhibiting much the same enthusiasm for the sport he had shown as a youth.

Boating was another passion in which he was able to indulge at Shelburne and in the rivers and lakes near Kinloch. Machinery always intrigued him and second only to driving speedboats he liked dismantling and re-assembling their motors — always trying to extract from them a little extra power.

His interest in internal combustion engines also extended to automobiles. Although he enjoyed travelling, he liked automobiles primarily because of their own inherent qualities. "It's a good piece of machinery" was the highest accolade he could bestow on any automobile. It was always the mode of travel rather than the places visited that interested him.

Mrs. MacKay, a cheerful and kindly person, became a member of the clan by adoption. She found summers in Nova Scotia very much to her liking, largely because of her fondness for the outdoor life. In her youth she was an outstanding tennis player, an accomplished horse-back rider and, like Dr. MacKay, she loved to drive automobiles — this at a time when few women numbered among their accomplishments the ability to drive. She also possessed considerable artistic ability, spending much of her leisure time producing landscapes in oils as well as painting china.

Dr. MacKay was a practising dentist for 45 years. He became a fellow of the American Academy of Dental Science and a member of the American Dental Association, the Massachusetts Dental Society, the New England Dental Society and the First District Dental Society of the State of New York. He was also a member of the Algonquin Club and of the Harvard Faculty Club of Boston.

When he retired in 1935 he began to spend his winters in Florida where his hobbies were golf and growing oranges, but he continued to visit Nova Scotia for the summers. He died in 1945 after a long and active life, but his philanthropic acts have continued to benefit the children of Shelburne County.

In his will Dr. MacKay left the bulk of his estate to his wife with a request that she carry out a plan he had formulated for the establishment of a modest hospital of which their Shelburne home was to become the nucleus.

However, in 1946, just after Dr. MacKay died, the Roseway General Hospital opened and it adequately fulfilled all the medical requirements of the community. Since there was no need for a second hospital Mrs.

MacKay modified the original plan. When she died in 1948 she left the estate inherited from her husband, plus \$5,000 of her own money, to found a dental clinic. The bequest included the MacKay residence and grounds.

To administer the clinic, Mrs. MacKay's will named a board of trustees — five business and professional men resident in Shelburne, and the Director of Dental Services of the Nova Scotia Department of Public Health who acts in a supervisory capacity.

Shelburne County has a population of approximately 14,000 people living for the most part in communities spread along the east-west paved highway. The main industry is fishing and the population is mostly rural.¹ For several years there had been two dentists practising in the county but immediately prior to the opening of the clinic there was only one resident dentist, additional dental service being provided on one or two days each week by dentists from a neighbouring county.

One wing of the MacKay residence has been converted into a dental office. It includes two operating rooms, a dark room, laboratory, business office, washroom and reception room. The suite has a separate entrance and is equipped with modern dental equipment including x-ray apparatus.

To supplement the annual income from the estate, which is insufficient to permit full-time operation of the clinic, the house and office are rented to a resident dentist, Dr. T. L. Rogers. He is employed on an hourly basis to operate the clinic each morning during the school term and he devotes the balance of his time to private practice.

The clinic provides a service for many children of Shelburne County who had not formerly received regular dental attention. Each local community makes its own arrangements for transporting the children, accompanied by adults, to the clinic. Every school child up to grade 3 receives a dental examination and as much dental treatment as time permits.

The clinic provides an invaluable service to the children of Shelburne County. It would be difficult to imagine a more appropriate memorial to Dr. Gurdon Robert MacKay, a highly skilled dental practitioner who, in spite of the fact that his professional successes were achieved elsewhere, never lost his love for the place where he was born. Believed to be the first dental clinic established as a private philanthropy in Canada, it is being watched with great interest by the Dental Public Health Committee of the Nova Scotia Dental Association.

His Worship, the Mayor

Aldis Bernard, first president of the Dental Association of the Province of Quebec, was a man of whom Canadians could be proud. Already highly skilled at a time before Confederation when dentistry had still not achieved recognition as a profession, he devoted all his energies to advancing the cause of his fellow practitioners and, through his leadership in municipal affairs, to improving the lot of the people of Montreal, the city where he spent most of his life.

Of his origins we have only very limited knowledge. He was born in the Eastern Townships of Quebec, into a home somewhere along the shores of Lake Memphremagog, about 1810. Very little of his youth was spent in Canada; he was taken to the southern United States at an early age.

In all probability he was apprenticed to an American dentist. Certainly he received some dental training as early as 1834 since he is known to have said in 1869 that he had been in practice for 35 years. During the time he spent in the US he itinerated, as was then the fashion, for a period of about 10 years. It was an era when the general practice of dentistry was at a low ebb. Mineral teeth were altogether unknown and human, calves' and sheeps' teeth were still in use.

He married a lady from Maryland some time before 1840 when he returned to Canada to practise for about a year in the Niagara district. His journey to his homeland is said to have been prompted primarily by reasons of health; we can assume that whatever ill-health he had suffered in early life mended quickly for events were to prove him an exceedingly active man who was to lead a long and constructive life.

In the autumn of 1841 Bernard moved from the Niagara district to Montreal. It was an event that was to have a notable effect, not only on the development of the dental profession in Quebec and throughout Canada, but on that of the city itself. In both professional and public life he soon demonstrated qualities of leadership that were to make him, in an era of rapid change and development, one of the founders of modern Montreal.

At the time he arrived in the city three other dentists were already established in practice. They were a Mr. Logan, who eventually went to Europe, a Mr. Scriptune, who died shortly after Aldis Bernard's arrival, and a Mr. Shearjashub Spooner, who subsequently transferred his practice to a Mr. C. M. Dickinson and then moved to the US.

After practising in the city for three years, Aldis Bernard realized that the dental profession could command the respect due to it only if it was properly organized as a professional body. So he began to lay the groundwork to achieve that aim.

In the 1840's a Bill for the Incorporation of the College of Physicians and Surgeons of Lower Canada was in the draft stage. It was intended to regulate the medical profession but it seemed only logical to incorporate the additional paragraphs required to permit the Bill to cover the dental profession also.

But the Bill did not enjoy a smooth passage. It was to become the subject of extended debate, much of it acrimonious. Numerous articles, including several of a highly partisan nature, appeared in the medical press. Although the inclusion of the regulations relating to dentistry was not a matter of contention, it certainly became overshadowed, if indeed such regulations were ever included in the draft.

Had events taken their normal course it seems probable that the Bill would ultimately have given due recognition to the practice of dentistry, but fate in the shape of disastrous fires set by incendiaries appears to have been instrumental in destroying any such hopes.

The actual date when Aldis Bernard attempted to insert into the Bill the draft regulations covering dentistry is not recorded, but it is known that his early suggestions were accepted at the committee stage. In later years, the date that the matter was discussed with the Committee was given variously as 1842, 1844 and even 1849. The latter date was the year in which Parliament was burned following disturbances resulting from the Rebellion Losses Bill and the stoning of Governor Lord Elgin.

It is conceivable that it was in that fire that the draft of the sections covering dentistry to be included in the Bill were destroyed. But it may be that an earlier and less publicized fire which burned down the courthouse on July 17, 1844 caused the loss.

Newspapers of the time reported that the courthouse fire resulted in the destruction of a vast collection of original records and other documents relating to the 1837 disturbances and to Lord Durham's subsequent investigations.

The conflagration started in the roof and, despite the work of many firemen, the entire upper storey of the building was soon destroyed. Part of the reason that the fire obtained such a good hold was that cuts appeared mysteriously in the hoses through which water was being pumped. It eventually transpired that the cuts had been

caused by one Carolus Lepage who had built sharp steel edges into one of his shoes and had used them while pretending to assist the firemen — an ingenious scheme to which he readily admitted when captured and charged with incendiarism.

Lepage had returned from the US shortly before the fire. From this it can be assumed that he had, in some way, been implicated in the 1837-39 disturbances and thereafter had fled, returning to Canada only when the Act of Amnesty was passed. At the enquiry following the fire he was found guilty of incendiarism and condemned to 15 years in prison but Felix Mercure, a man alleged to have been his accomplice, was set free.

It is very apparent that all the papers relevant to the attempts of Quebec dentists to achieve recognition as a professional body were destroyed in one or other of the two fires. So all reconstructions of the happenings of that period are necessarily based on records obtained from secondary sources.

Although we will never know the precise form of the pertinent paragraphs that would have incorporated regulations relating to dentistry into the Bill, it is clear from records made by Dr. W. G. Beers in 1869 of speeches by Aldis Bernard and Dr. C. Brewster that the appropriate regulations had, indeed, been drafted. It was in 1844, prior to both fires, that Bernard appeared before the Committee to ask that the practice of dentistry be given consideration. The Committee was agreeable and on the following day papers were prepared for enactment. But when the Bill, which underwent considerable modification before the final draft was approved, became law on August 10, 1847, it carried no reference to dentistry.

That was the termination of the initial attempt to bring dentists together as a profession in Quebec and, rather curiously, two decades were to pass before any further effort was made to accomplish the task.

The year 1844 was the saddest in Aldis Bernard's life. His wife and his son died. But in 1851 he married again and in the years that followed, with a family of five sons and two daughters to support, he devoted most of his time to his work. He was a good practitioner and although he tended to rely largely on equipment that was old and familiar, he was not against trying anything new.

In the mid-1800's, hand instruments were still much used but the transition from the key to forceps, which had been re-introduced for extractions in 1839, was in progress. Small spoon excavators were a new innovation. Good chisels were still in the future, although an early and rather inferior version was in use. A drill was available in

a drill stock and slack bow. Access to proximal cavities was achieved by use of the file.

Gold was used for filling cavities. Watt's sponge golds and Abbey's foil, in both ribbon and block form, were common restorative agents. The materials were inserted by means of smooth wedge-shaped pluggers.

To use ribbon it was necessary to calculate the amount needed and insert it in one piece. Sometimes cavities were filled with tin foil or with mastic, a hardened gum at that time much used in medicine. Amalgam was also used although it was held in disrepute by many dentists.

When Bernard's practice reached the stage where he needed an assistant, he did not follow the usual custom of taking an apprentice. Instead, he went to Boston which was one of the more advanced cities insofar as dentistry was concerned, and engaged J. A. Bazin, a man who had acquired several years of mechanical experience before taking up dentistry as a profession. Bazin had some knowledge of anaesthetics and had been associated with the office that eventually produced vulcanite dental plates.

Aldis Bernard undoubtedly kept a library of the latest works on dentistry. Although none of his books have survived, several that belonged to Bazin are now preserved in the McGill Dental Library and it can be assumed that Bernard was familiar with all of them.

Levi Spear Parmly, in his *Summum Bonum* published by J. Nielson of Quebec, had covered the whole of dentistry in 65 pages. In 1836 Shearjashub Spooner of Montreal wrote *Guide to Sound Teeth*. It was a book of 205 pages in which he twice mentions the methods of his brother, the Montreal practitioner John Roach Spooner 1794-1838, to whom he gives credit for originating the devitalization of teeth by arsenic and morphine and the production of superior porcelain teeth before 1836.

In the early 1800's John Hunter, Robert Blake, Joseph Fox, James Snell, J. C. F. Maury, all of whom were Europeans, and Leonard Koecker of Philadelphia and London were the noted authorities on dentistry and Bernard was undoubtedly thoroughly familiar with their work.

At the time his assistant joined him in 1855 Bernard's office was on Craig Street. He moved his family into an attic so that Bazin could be suitably ensconced in the best room — second storey, front — where a laboratory, with a porcelain furnace, fully equipped to make continuous gum dentures was installed. At that time, in Montreal, plain teeth mounted on gold or silver plate was the more common type of

denture provided; no other office could offer dentures with continuous porcelain gums.

It is obvious from advertisements inserted in Montreal newspapers of that era that nitrous oxide was already in common use by 1865 but



St. James Street, Montreal, c. 1867.

it is not widely known that Aldis Bernard, in addition to performing extractions, filled teeth while the patient was anaesthetized by the gas.

We do not know what charges he made for his services, but in the town of Huntingdon, Quebec, about 60 miles from Montreal, the *Huntingdon Journal* published a list of prices charged by a local dentist, A. H. Robinson, that gives some indication of what was considered reasonable for the period :

Filling small cavity with gold	\$1
Filling large cavity with gold	\$2 to \$5

Tin foil, artificial and other fillings	50 cents to \$2
Extracting each tooth	25 cents
Inserting each pivot tooth	\$1 to \$5
Single tooth on vulcanized rubber	\$3 to \$5
Full upper and under set on rubber	\$30 to \$40
Full upper and under set on silver	\$40 to \$60
Full upper and under set on gold	\$75 to \$100

It seems likely that Bazin's skills were highly beneficial to Aldis Bernard's practice. Although the association continued for only eight months before Bazin set up his own office in Fortification Lane, the materials and techniques he had helped introduce were soon supplemented by further innovations. Oxychloride of zinc cement, adhesive foil and carbolic acid all followed in rapid succession.

As Bernard prospered, he began to take an interest in municipal affairs. In 1858 he was elected councillor for the Montreal Centre Ward and his obvious abilities and boundless energy soon brought him recognition. He became noted as the author or principal promoter of many beneficial by-laws. Among them were those relating to Sunday Liquor, Tree Planting and Milk Inspection legislation. He was successively chairman of the Finance Committee, of the Police Committee and of the Committee for the New City Hall.

He became president of the Mechanics Institute for the year 1850-1851 and was subsequently connected with the management of that organization for more than 16 consecutive years. He was a member of the Natural History Society which, despite its name, served as a centre for discussions of scientific topics, and he was also one of the founders of the Society for the Prevention of Cruelty to Animals. As a Wesleyan and an active Freemason, he was one of the principal founders of the Grand Lodge of Canada and its first Deputy Grand Master. On many occasions he was asked to stand for the Legislature, but always declined.

It is obvious that he had a high regard for the maintenance of law and order and for the men who enforced it. During the time he was chairman of the Police Committee police salaries were raised from 50 cents a day to one dollar a day. By 1873 Montreal was expanding rapidly. This was the time of the 'Pacific Scandals.' There was a good deal of hardship and want, and the number of people who found shelter in police stations was by all accounts considerable. That year the Chief of Police requested that he be allowed to increase policemen's salaries "for the better men" to nine dollars a week — "the rest to eight dollars." There were 151 men on the force.

Since Aldis Bernard had given ample proof by his activities in municipal affairs that he was an excellent organizer, it was only natural that dentists practising in the city should look to him to lead them in reopening the question of forming a provincial association.

The first preliminary meeting with that aim, which Aldis Bernard chaired, was called on September 2, 1868 by Dr. C. Brewster. It was suggested that Quebec dentists follow the precedent already established in Ontario by setting up a corresponding association. At the second meeting Dr. Brewster occupied the chair *pro tem* because Bernard was late. When he arrived, Bernard invited the assembled dentists to his home at 1002 St. Catherine Street to draft a Constitution for what was eventually to become the Dental Association of the Province of Quebec (and subsequently the College of Dental Surgeons of the Province of Quebec).

On October 28, 1868, after clause by clause consideration of the Constitution, it was adopted. Thereupon, Bernard invited everybody present to partake of the hospitality of his house in honour of the founding of the Society.

As Dr. W. G. Beers recorded, "A *recherché* and tempting dinner surprised the members. A. Bernard presided, assisted by H. Davies, Mr. Cartier, MPP on his right and Mr. Ogilvie, MPP on his left."

After full justice had been done "to the good things so bountifully provided" toasts were drunk to The Queen, The Governor General of the Dominion of Canada and to The Lieutenant Governor of Quebec. There followed a song — *A la Claire Fontaine* — by Dr. Lefavre and several speeches in both French and English.

The final toast to the host and hostess was offered by Dr. Brewster.

In his reply, Aldis Bernard said that he believed himself to be the oldest practising dentist in Canada. He attributed his success in practice to having always been guided by the principles of respect for himself and for society. He said that he had always endeavoured to do his best and though he had sometimes failed, for want of knowledge, of advantage, and of time, he had always been guided by honest intentions.

As recorded by Beers, he concluded by saying "It affords me much pleasure to have the first meeting of the Association for the adoption of the Constitution in my own house. I am willing to bestow all the knowledge I possess for the benefit of those who care to receive it. I advise the members to sustain the Association, to read and study the current dental periodicals and work of the day."

He then thanked everybody present on behalf of Mrs. Bernard

who said that she was gratified at the honour conferred on her husband and on her home.

In the Constitution (as incorporated on March 30, 1869) there is good evidence of the appreciation accorded by Bernard and his associates to literature. In Article VII the Board of Trustees and Examiners recommended that examinations, both written and oral, should embrace no less than eight contemporary texts: *Tomes' Dental Surgery*, *Taft's Operative Dentistry*, *Harris's Principles and Practice of Dental Surgery*, *Bond's Dental Medicine*, *Richardson's Mechanical Dentistry*, *Handy & Gray's Anatomy*, *Carpenter's Physiology*, and *Piggott's Dental Chemistry*.

With the new organization duly formed, it was inevitable that Aldis Bernard, then 59 years of age, should be elected president. He rarely missed any meetings of the Association, yet his energy was undiminished and his involvement in municipal affairs continued unabated. He became Montreal Harbour Commissioner during a time of intense harbour development and was also a director of the Northern Colonization Railway, a Justice of the Peace, and a Licence Commissioner.

In city politics he supported Mr. Cassidy, a reform candidate. Some idea of the primitive nature of the Montreal of that era can be gained from the fact that the chief plank in Cassidy's political platform was a promise that, if elected, he would get rid of the pigs which roamed freely through the Montreal streets.

With Aldis Bernard's active support, Cassidy won the election. His followers were so overjoyed at the result that they paraded through the streets with a pig's head mounted on a broomstick, emulating an admiral of a former era who had tied a broom to his masthead to signify that he had swept the seas clear of his enemies.

Eliminating the pigs was only the beginning. Records of the period show that the city eventually spent \$431,090 on paving the sidewalks of five streets. Most of them still had no sidewalks or, at best, only wooden versions that had a disconcerting habit of floating away during spring floods.

Cassidy died while still in office and shortly afterward Aldis Bernard was elected by acclamation to succeed him and serve for the balance of the term. He was sworn in as Mayor of Montreal on June 23,

Reprinted opposite are editorials, news items and a dentist's advertisement which were published between January 1 and May 30, 1867 in the Montreal Gazette. The paper criticized unsanitary conditions, defective wooden sidewalks and pigs that roamed the city's streets at will. Dr. Fisk claimed to be a former assistant of Aldis Bernard.

The Gazette.

MONTREAL, 1867

EDITORIAL

Water is essential to human existence. It is therefore proper that the citizens should be supplied with a pure quality from the Water Works. Every spring and fall the water in the river is so muddy that to see it on the table makes people shudder, and the bare idea of drinking it is revolting. For at least two or three months of the year this is the case. Apart from all the other considerations this should weigh with the Corporation, and decide the question of a large reservoir, capable of holding an abundant supply of water in case of accident, and in which water would have time to become clear before being distributed. If this is not done arrangements should be made for filtering. There is no sufficient reason why the rate-payers should be condemned to drink dirty water for such a large portion of their lives. [May 10].

EDITORIAL

Montreal has many advantages other than its magnificent commercial ones. Its situation is beautiful . . . and its climate is really as fine as the heart of man can desire. Why then is it not among the healthiest cities of the world? The reasons are, unfortunately, not very far to seek. Its drainage is still defective except as regards some of the principal streets, and it has no system of scavenging by which refuse organic matter can be every day taken away . . .

The fact is that stables, outhouses of any kind, even for the storage of fuel, and cesspools of all kinds, especially connecting with sewers by wooden drains, are an utter abomination in respectable streets, and should not be tolerated in a large city. Our American neighbors, at least in the better part of their cities, are much more cleanly and have received a much higher point in civilization, we confess it with no pleasure, than we have in Montreal.

This reproachful condition not only means fever and death to thousands, especially of the young, but it hinders, it cannot be too often repeated, Montreal from being so desirable a place to live in as it ought to be, and hinders its progress and prosperity. It is nothing to say that Montreal is prosperous in point of fact. It is so from the force of circumstances and in spite of the evils of which we speak.

We may not be able for years to get streets here without dirty outhouses. But there is no reason why at once the system of street drainage, so well begun, should not be perfected; and all wooden drains connecting with cesspools abolished and prohibited. No reason why the manure of stables in the city should be allowed to lie for a single day; no reason why the garbage, &c., thrown out of houses, should not be carted off every morning; and no reason why the streets should not be regularly and daily swept and the dirt carried away. There may be other things afterwards, but these are necessary to begin with. [May 25].

CITY ITEMS.

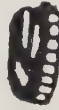
PIGS ON BEAVER HALL

A correspondent writes us as follows:—For some days past a couple of pigs have been roaming at large in Beaver Hill Square, destroying the turf and rooting up the ground. A policeman ought to visit the locality and drive the animals to the public pound. This would speedily bring the owner to his bearings, who seems to fancy he may transgress the city by-laws with impunity. There are also certain persons who are attempting to introduce the practice of beating carpets in the Square, and annoying the neighbours with clouds of dust from their

dirty furniture. These gentry might be looked after at the same time as the pigs. If one person be allowed to take these liberties in the streets and squares, all may claim an equal right to do the same, and a general public nuisance will be the result. [May 28].

USELESS SIDEWALKS

Bad as the sidewalks are throughout the city there are some so dangerous as to necessitate a caution being given to the public to take the middle of the street when obliged to pass those places. It may be inconvenient and annoying to have to do so, but it is infinitely better to dirty a pair of boots or soil a dress than to break a rib or arm as might happen at any moment passing over the rotten planks. [May 30].



NEWELL FISK, SURGEON

AND MECHANICAL DENTIST, (late Assistant of Dr. BERNARD, Montreal,) begs to return thanks to his patrons for past favors, and to announce to them and the public generally in the District of Bedford, that he has established himself at WATERLOO, where he will have facilities for attending to all branches of Dentistry in a manner equal to any first class city operator.

N.B.—Mr. Fisk pays special attention to the preservation of teeth during the critical period. All persons, therefore, under twenty years of age should give him a call at least twice a year and have incipient decay arrested, and thus avoid the horrors of toothache, and the necessity in after life of resorting to artificial teeth.

Teeth inserted on Gold, Silver and Rubber, in the best manner. All work warranted as usual, and a liberal share of patronage solicited. Waterloo, Jan. 1st., 1867.

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1873 and at the next election won the office by a large majority.

Under the new Mayor's energetic direction Montreal thereafter underwent a period of dynamic growth not equalled until recent years. During his term of office the city acquired Mountain Park, Dominion Square, Quebec Gate Barracks, St. Helen's Island and Logan's Farm (Lafontaine Park). Work began on the new city hall and improvements to the water works and many other municipal projects were commenced.

Although city affairs had a prior claim on his time, Aldis Bernard never neglected the Association which he had played so important a part in forming. He was re-elected president each year until his death.

L'Opinion Publique, a newspaper of the day, records that he died on July 3, 1876, in San Jose, California, at the age of 66 years. His body was brought back to Montreal where he had spent so much of his life. On July 15, 1876, with the full Masonic honours due to a Past Grand Master of that Society, he was buried in Mount Royal Cemetery. In accordance with a resolution of the Dental Association of the Province of Quebec passed four days previously, the members attended the funeral in a group, and a committee of three was appointed to present a message of condolence to the family.

Mrs. Bernard was to survive her husband for nearly half a century. She died on September 16, 1925, at the age of 92 years.

It could be claimed, with a substantial measure of justification, that Aldis Bernard was one of the true fathers of organized dentistry in Canada. By his unremitting efforts on behalf of the Quebec Association he succeeded in bringing a great deal of respect to the profession and by his activities in the municipal affairs of the City of Montreal proved himself, in the more general sense, an invaluable member of society.

Son honneur, le maire

Le premier président de l'Association dentaire de la province de Québec, Aldis Bernard, était un homme dont les Canadiens peuvent être fiers. Déjà très habile avant la Confédération à une époque qui n'avait pas encore reconnu la dentisterie comme une profession, il consacra tous ses efforts à améliorer le statut de ses collègues et, par le rôle éminent qu'il joua dans les affaires municipales, à améliorer le sort des habitants

de Montréal, ville dans laquelle il passa la plus grande partie de sa vie.

De ses origines, nous n'avons qu'une connaissance limitée. Il naquit dans une des villes septentrionales du Québec, quelque part sur les bords du lac Memphremagog, vers 1810. Il ne vécut alors au Canada que quelques années avant d'être emmené, encore très jeune, au sud des Etats-Unis.

Très vraisemblablement, il fut apprenti chez un dentiste américain. Il reçut certainement une certaine formation dentaire très tôt, vers 1834, puisque nous savons qu'il déclara, en 1869, qu'il pratiquait depuis 35 ans. Pendant son séjour aux Etats-Unis, il alla de ville en ville, pendant une période d'environ 10 ans, comme cela se faisait à cette époque. C'était une période pendant laquelle la pratique générale de la dentisterie était peu florissante. Les dents minérales étaient entièrement inconnues et l'on employait encore des dents humaines ainsi que celles des veaux et des moutons.

Il épousa une dame du Maryland avant 1840, date à laquelle il revint s'établir pendant un an, au Canada, dans la région de Niagara. Son retour au pays natal était dû, dit-on, à des raisons de santé; nous présumons que quels qu'aient été ses ennuis dans ce domaine, au début de sa vie, ils disparurent rapidement, car il se révéla un homme extrêmement actif qui allait avoir une vie longue et bien remplie.

A l'automne de 1841, Bernard quitta le district de Niagara pour Montréal. Cet événement devait avoir de grandes conséquences, non seulement pour le développement de la profession dentaire au Québec et dans tout le Canada, mais pour la ville elle-même. Dans sa vie professionnelle comme dans sa vie publique, il fit preuve de qualités de chef, qui à une époque de changements et de développements rapides, allaient en faire l'un des fondateurs du Montréal moderne.

Lorsqu'il arriva dans cette ville, trois autres dentistes y étaient déjà établis: M. Logan, qui partit éventuellement en Europe, M. Scriptune, qui mourut peu après l'arrivée d'Aldis Bernard et M. Shearjashub Spooner, qui devait par la suite vendre son cabinet à M. C. M. Dickinson et aller aux Etats-Unis.

Après trois ans de pratique à Montréal, Aldis Bernard se rendit compte que la profession dentaire ne recevrait le respect qui lui était dû qu'en s'organisant en un corps professionnel. Il entreprit alors le travail préliminaire nécessaire pour obtenir ce résultat.

Autour de 1840, un projet de loi pour l'établissement du Collège des médecins et chirurgiens du Bas Canada était à l'étude. Il devait réglementer la profession médicale, mais il semblait tout à fait logique d'y incorporer quelques paragraphes supplémentaires pour que la loi



couvre également la profession dentaire.

Cette loi cependant ne fut pas adoptée sans difficulté. Elle allait être le sujet de débats prolongés et souvent acrimonieux. De nombreux articles, dont plusieurs extrêmement tendancieux, apparurent dans la presse médicale. Bien que l'incorporation de règlements relatifs à la dentisterie n'aient pas soulevé de controverse, elle passa inaperçue dans le feu de la discussion, à supposer que de tels règlements aient jamais figuré dans ce projet de loi.

Si les événements avaient suivi leur cours, il semble probable que la loi aurait finalement reconnu la pratique dentaire, mais le destin, sous la forme d'incendies désastreux provoqués par des incendiaires, semble être intervenu pour mettre fin à ces espoirs.

La date exacte à laquelle Aldis Bernard essaya de faire incorporer dans la loi des règlements couvrant la dentisterie n'est pas connue, mais nous savons que ses premières suggestions furent acceptées lorsque le projet était à l'étude. Des années plus tard, mais toujours au cours de sa vie, la date de la discussion de cette question en comité fut donnée à différentes occasions comme étant 1842, 1844 et même 1849. Cette dernière date fut celle de l'incendie du Parlement à la suite de troubles sérieux résultant de la loi sur les pertes de la rébellion et de la lapidation du Gouverneur Lord Elgin.

Il est possible que c'est dans cet incendie que les sections du projet de loi couvrant la dentisterie furent détruites. Mais il se peut que cette perte ait été subie dans un autre incendie plus ancien et moins connu, celui du Tribunal, le 17 juillet 1844.

Les journaux de l'époque rapportèrent que l'incendie du Tribunal causa la destruction d'une collection importante de documents originaux et autres relatifs aux troubles de 1837 et à l'enquête qu'ouvrit alors Lord Durham.

La conflagration commença dans le toit et en dépit des efforts de nombreux pompiers, tout l'étage supérieur du bâtiment fut rapidement détruit. L'une des raisons qui permirent au feu de prendre de cette façon fut l'apparition mystérieuse de coupures dans les tuyaux. On apprit éventuellement que ces coupures étaient l'œuvre d'un certain Carolus Lepage, qui ayant muni l'une de ses chaussures de lames d'acier tranchantes qu'il avait employées en prétendant aider les pompiers : un plan ingénieux qu'il admit sans difficulté lorsqu'il fut capturé et accusé d'incendie volontaire.

Lepage était revenu des Etats-Unis peu de temps avant le feu. Nous pouvons en conclure qu'il avait été impliqué, d'une façon ou d'une autre, dans les troubles de 1837-39, qu'il s'était enfui et qu'il n'était revenu au

Canada qu'après l'adoption de la loi d'amnistie. Au cours de l'enquête qui suivit l'incendie, il fut trouvé coupable d'incendie volontaire et condamné à 15 ans de prison, mais Félix Mercure, un homme qui était censé avoir été son complice, fut remis en liberté.

Il est tout à fait évident que tous les papiers concernant la tentative des dentistes du Québec de se faire reconnaître comme corps professionnel furent détruits dans l'un de ces deux incendies. Aussi toutes les reconstitutions des événements de cette époque sont basés sur des documents en provenance de sources secondaires.

Nous ne saurons jamais la forme précise des paragraphes qui auraient concerné la réglementation de la dentisterie dans la loi, mais il est clair, d'après la consignation en 1869 par le Dr W. G. Beers des discours d'Aldis Bernard et du Dr C. Brewster, que les règlements avaient en fait été rédigés. C'était en 1844, avant les deux incendies, que Bernard parut devant le Comité pour lui demander de prendre en considération la pratique de la dentisterie. Le Comité accepta et le jour suivant les documents furent préparés dans ce but. Cependant lorsque le projet de loi, qui subit de nombreuses modifications avant l'approbation de sa version finale, fut voté le 10 août 1847, il ne s'occupait pas de la dentisterie.

Ainsi finit la première tentative d'organisation des dentistes en profession au Québec et, ce qui est plutôt curieux, 20 ans s'écoulèrent avant son renouvellement.

L'année 1844 fut la plus triste de la vie d'Aldis Bernard. Sa femme et son fils moururent. Mais il se remaria en 1851 et dans les années qui suivirent, il consacra la plus grande partie de son temps à son travail pour faire vivre sa famille composée de cinq fils et deux filles. Il était bon dentiste et bien qu'il ait eu tendance à se servir surtout de vieil équipement familial, les nouveautés ne lui faisaient pas peur.

Vers 1850, les instruments manuels étaient encore beaucoup utilisés, mais l'abandon de la clé en faveur du forceps, dont l'usage s'était répandu à nouveau en 1839, était en train de se faire. Les petits excavateurs étaient une nouvelle invention. De bons ciseaux n'existaient pas encore, bien qu'une version primitive et plutôt inférieure ait été utilisée. Il existait une fraise. L'accès aux cavités proximales se faisait au moyen de limes.

On employait l'or pour remplir les cavités. Les ors spongieux de Watt et l'aluminium en feuille d'Abbey, sous forme de ruban et de bloc, étaient les agents de restauration les plus utilisés. Les matériaux étaient insérés au moyen de fouloirs lisses de forme triangulaire.

Pour employer le ruban, il fallait calculer la quantité nécessaire et

l'insérer en une fois. Parfois les cavités étaient bouchées avec de l'aluminium ou avec du mastic, qui est une gomme durcie beaucoup utilisée en médecine à cette époque-là. On employait aussi parfois de l'amalgame, mais il avait mauvaise réputation auprès de nombreux dentistes.

Lorsque la clientèle de Bernard devint si nombreuse qu'il lui fallut un assistant, il ne prit pas d'apprenti, comme c'était alors la coutume. Il alla à Boston, qui était l'un des centres de la dentisterie et engagea J. A. Bazin, un homme qui avait eu plusieurs années d'expérience comme mécanicien avant de choisir la dentisterie comme profession. Bazin avait une certaine connaissance de l'anesthésie et avait travaillé dans le cabinet qui devait éventuellement produire des dentiers en vulcanite.

Aldis Bernard avait sans aucun doute une bibliothèque composée des ouvrages les plus récents sur la dentisterie. Bien qu'aucun de ses livres ne nous soit parvenu, plusieurs de ceux qui appartenaient à Bazin sont conservés dans la librairie dentaire de McGill et l'on peut supposer que Bernard les avait tous étudiés.

Levi Spear Parmly, dans son *Summum Bonum*, publié par J. Neilson de Québec, traitait, en 65 pages, de l'ensemble de la dentisterie. En 1836, Shearjashub Spooner de Montréal écrivit le *Guide to Sound Teeth* (Guide pour avoir des dents saines). C'était un livre de 205 pages dans lequel il mentionnait par deux reprises les méthodes de son frère, le praticien montréalais, John Roach Spooner, 1794-1838, qu'il considérait comme l'inventeur de la dévitalisation des dents par arsenic et morphine et qui, d'après lui, fabriquait des dents en porcelaine d'excellente qualité, avant 1836.

Au début du XIXe siècle, des Européens John Hunter, Robert



Le Marché Bonsecours à Montréal, c. 1867.

Blake, Joseph Fox, James Snell, J. C. F. Maury et Leonard Koecker de Philadelphie et Londres étaient les autorités en dentisterie et il est certain que Bernard était très au courant de leurs travaux.

Lorsque Bernard prit un assistant, en 1855, son cabinet était situé rue Craig. Il déménagea sa famille au grenier pour que Bazin puisse être convenablement installé dans la meilleure pièce de la maison, au deuxième étage, sur la rue, où il aménagea un laboratoire avec un four à porcelaine, entièrement équipé pour fabriquer des dentiers à gencive continue. A cette époque-là, à Montréal, des dents montées sur une base d'or ou d'argent étaient le type de dentiers le plus courant; aucun autre cabinet n'offrait de dentiers à gencive continue en porcelaine.

Il est évident d'après les annonces publicitaires publiées dans les journaux de Montréal de cette époque que l'oxyde nitrique était déjà employé couramment en 1865, mais ce que l'on ne sait généralement pas c'est qu'Aldis Bernard non seulement procédait à des extractions, mais obturait des cavités après avoir anesthésié son patient au gaz.

Nous ne connaissons pas le prix de ses services, mais dans la ville de Huntingdon, Québec, à quelque 60 milles de Montréal, le *Huntingdon Journal* publia la liste des prix demandés par un dentiste local, A. H. Robinson, ce qui nous donne une idée de ce que l'on considérait raisonnable à l'époque.

Plombage d'une dent avec de l'or (petite cavité)	\$1
Plombage d'une dent avec de l'or (cavité importante)	\$2 à \$5
Plombage avec feuille d'aluminium, amalgames et autres	50 cents à \$2
Extraction, par dent	25 cents
Insertion de dents à pivot, par dent	\$1 à \$5
Une dent sur caoutchouc vulcanisé	\$3 à \$5
Dentier complet inférieur et supérieur, sur caoutchouc	\$20 à \$40
Dentier complet inférieur et supérieur, sur argent	\$40 à \$60
Dentier complet inférieur et supérieur, sur or	\$75 à \$100

Il semble vraisemblable que les talents de Bazin eurent l'effet le plus heureux sur la pratique d'Aldis Bernard, bien que leur association n'ait duré que huit mois au bout desquels Bazin ouvrit son propre cabinet sur la ruelle des Fortifications. Aux matériaux et techniques qu'il aida à lancer, vinrent bientôt s'ajouter d'autres inventions. Le ciment à l'oxychlorure de zinc, la feuille d'aluminium adhésive et l'acide phénique devaient suivre rapidement.

Au fur et à mesure que Bernard prospérait, il s'intéressa aux affaires municipales. En 1858, il fut élu conseiller pour la circonscription centrale de Montréal; ses talents évidents et son énergie sans borne furent très rapidement appréciés. Il se fit un nom comme auteur ou promoteur

principal d'un grand nombre de lois municipales bienfaisantes. Notons parmi elles celles se rapportant à l'alcool le dimanche, à la plantation des arbres et à l'inspection du lait. Il fut successivement, président du Comité des Finances, du Comité de la Police et du Comité pour le nouvel hôtel de ville.

Il devint président de l'Institut des mécaniciens pour l'année 1850-51 et s'occupa ensuite de la direction de cette organisation pendant plus de 16 années consécutives. Il était membre de la Société d'Histoire Naturelle qui, en dépit de son nom, était le centre de discussion des sujets scientifiques et il fut l'un des fondateurs de la Société protectrice des animaux. Wesleyen et franc-maçon actif, il fut l'un des principaux fondateurs de la Grande loge du Canada et son premier Grand-Maître adjoint. On lui demanda à différentes reprises de se présenter au parlement, ce qu'il refusa toujours.

Il est évident qu'il était très préoccupé du maintien de l'ordre et de la loi et qu'il avait beaucoup de respect pour les hommes dont c'était la responsabilité. Pendant la période au cours de laquelle il fut président du Comité de la Police, leurs salaires furent augmentés de 50 cents par jour à un dollar. En 1873, Montréal était en plein essor. C'était l'époque des "Scandales du Pacifique". Il y avait beaucoup de gêne et de misère et d'après tous les rapports, le nombre de gens qui trouvèrent abri dans les postes de police était considérable. Cette année-là, le chef de police demanda l'autorisation d'augmenter les salaires des policiers à neuf dollars par semaine "pour les meilleurs" et à huit pour les autres. Les effectifs de la police comptaient 151 hommes.

Comme Aldis Bernard avait amplement prouvé ses qualités d'organisateur par ses interventions dans les affaires municipales, il était tout à fait naturel que les dentistes de la ville lui demandent de ressusciter la question de la formation d'une association provinciale.

La première réunion préliminaire dans ce but, présidée par Aldis Bernard, se tint le 2 septembre 1868 à l'instigation du Dr C. Brewster. Il y fut suggéré que les dentistes suivent le précédent déjà établi en Ontario et qu'ils fondent une association correspondante. A la deuxième réunion, le Dr Brewster fit fonction de président, Bernard étant en retard, mais à son arrivée, il invita les dentistes réunis à se rendre chez lui, 1002 rue Ste-Catherine pour préparer les statuts de ce qui allait devenir l'Association dentaire de la province de Québec (et par la suite le Collège des Chirurgiens-dentistes de la province de Québec).

Le 28 octobre 1868, après un examen des statuts, clause par clause, ceux-ci furent adoptés. Sur ce, Bernard invita toutes les personnes présentes chez lui pour fêter la fondation de la Société.

Comme l'a noté le Dr W. G. Beers, "Un repas recherché et tentant

attendait les membres étonnés. A. Bernard, présidait, assisté de H. Davies et de M. Cartier MMP à sa droite et de M. Ogilvie MPP, à sa gauche."

Après avoir rendu justice "à toutes les bonnes choses offertes en telle abondance," les convives portèrent des toasts à la Reine, au Gouverneur général du Dominion du Canada et au Lieutenant-Gouverneur du Québec, suivis d'une chanson "A la claire fontaine" entonnée par le Dr Lefavre, et de plusieurs discours en français et en anglais.

Le dernier toast, à leur hôte et hôtesse, fut porté par le Dr Brewster.

Dans sa réponse, Aldis Bernard déclara qu'il pensait être le plus ancien praticien dentaire au Canada et qu'il attribuait son succès au fait qu'il s'était toujours laissé guider par le respect de lui-même et de la société. Il expliqua qu'il avait toujours essayé de faire de son mieux et que s'il n'y avait pas toujours réussi faute de connaissance, de moyens et de temps, ses intentions avaient toujours été honnêtes.

D'après Beers, à qui nous devons ce compte-rendu, il termina en disant: "Je suis très heureux que la première réunion de l'Association pour l'adoption des statuts se soit tenue chez moi. Je suis prêt à divulguer toutes mes connaissances pour le bénéfice de ceux qu'elles intéressent. Je demande aux membres de soutenir l'Association, de lire et d'étudier les publications dentaires périodiques et les recherches en cours."

Il remercia ensuite tous les assistants au nom de Mme Bernard, qui s'était déclarée très touchée de l'honneur fait à son mari et à son foyer.

D'après les statuts enregistrés le 30 mars 1869, on voit l'importance que Bernard et ses associés donnaient à la documentation écrite. A l'article VII, le Conseil d'administration et d'examen recommanda que les examens oraux et écrits portent sur un minimum de huit textes contemporains: *La chirurgie dentaire* de Tomes; *La dentisterie opérative* de Taft; *Les principes et la pratique de la chirurgie*, de Harris; *La médecine dentaire*, de Bond; *La dentisterie mécanique* de Richardson; *L'anatomie* de Handy et de Gray; *La physiologie* de Carpenter; *La chimie dentaire* de Piggott.

Une fois la nouvelle organisation dûment formée, il était inévitable qu'Aldis Bernard, alors âgé de 59 ans, en fut élu président. Il manqua rarement les réunions de l'Association, bien qu'il ait continué avec la même énergie à s'occuper des affaires municipales. Il devint commissaire du port de Montréal à une époque de développement intensif et fut également directeur aux Chemins de fer de la colonisation du Nord, juge de Paix et commissaire agréé.

En politique municipale, il fut un ardent partisan de M. Cassidy, qui

était en faveur des réformes. On peut se faire une idée des conditions primitives du Montréal de l'époque si l'on pense que l'un des éléments principaux du programme politique de Cassidy était la promesse, que s'il était élu, il débarrasserait la ville des porcs en liberté dans les rues.

Avec l'appui actif d'Aldis Bernard, Cassidy gagna l'élection. Ses partisans en furent tellement ravis qu'ils paradèrent dans les rues avec une tête de porc au bout d'un manche à balai, copiant ainsi un amiral d'une époque antérieure qui avait attaché un balai au haut de son mât pour déclarer qu'il débarrassait les mers de ses ennemis.

La suppression des porcs n'était qu'un début. Les archives de l'époque indiquent que la ville dépensa éventuellement \$431,090 pour paver les trottoirs de cinq rues. La plupart des rues n'avaient pas de trottoir ou tout au plus un équivalent en bois qui avait l'habitude déconcertante d'être emporté par les eaux pendant les inondations de printemps.

Cassidy mourut alors qu'il était encore maire et peu après Aldis Bernard fut élu par acclamation pour le restant de son terme. Il prêta serment comme maire de Montréal le 23 juin 1873 et aux élections suivantes fut réélu à une forte majorité.

Sous la direction énergique du nouveau maire, Montréal connut alors un essor inégalé jusqu'à ces dernières années. C'est pendant qu'il était son maire que la ville acquit le Parc de la Montagne, la Place du Dominion, les Barraques de la Porte de Québec, l'Ile Ste-Hélène et la Ferme de Logan (le Parc Lafontaine). Ce fut le début de la construction du nouvel hôtel de ville et des améliorations pour la distribution de l'eau, ainsi que de nombreux autres projets municipaux.

Bien qu'il ait fait passer les affaires de la ville les premières, Aldis Bernard ne négligea jamais l'Association qui lui devait en partie son existence. Il en fut réélu président, tous les ans, jusqu'à sa mort.

L'un des journaux de l'époque *l'Opinion publique*, rapporte qu'il mourut le 3 juillet 1876, à San Jose, Californie, à l'âge de 66 ans. Son corps fut ramené à Montréal où il avait passé la plus grande partie de sa vie. Il fut enterré au cimetière de Mont-Royal, le 15 juillet 1876 avec tous les honneurs maçonniques dues à un ancien Grand-Maître de cette société. Conformément à une résolution adoptée quatre jours plus tôt, par l'Association dentaire de la province de Québec, les membres de l'Association assistèrent à l'enterrement en groupe et un comité de trois personnes fut nommé pour présenter des condoléances à la famille.

Mme Bernard devait survivre à son mari pendant près d'un demi-siècle. Elle mourut le 16 septembre 1925, à l'âge de 92 ans.

On a pu déclarer, avec une grande mesure de vérité, qu'Aldis Bernard était vraiment l'un des fondateurs de la dentisterie organisée au

Canada. Par ses efforts incessants pour le compte de l'Association du Québec, il réussit à faire naître un grand respect pour la profession et par ses activités municipales dans la ville de Montréal, il se montra d'une façon plus générale d'une valeur inestimable pour la société.

A servant of high estate

A few short weeks after John A. MacDonald's delegation to the British Parliament was meeting in a London hotel to frame the British North America Act, another group was gathering in Toronto to launch the first dental organization in Canada. The date of the latter meeting was January 3, 1867, and it is significant that ever since then the growth of the dental profession has paralleled that of Canada.

One reason is that the Ontario Dental Association and the Royal College of Dental Surgeons of Ontario were built on foundations that were laid very firmly and this was due in large measure to the efforts of men like John Branston Willmott. Although he had no part in the initial formation of the college and the association, Willmott was a pioneer whose tenacity and foresight were to give tremendous impetus to the cause of organized dentistry in its earliest days. The Ontario association and the school which, due primarily to Willmott's organizing ability, eventually stemmed from it, formed a pattern which influenced all such institutions founded in Canada in the years that followed.

J. B. Willmott was born in 1837 and he was raised on his parents' farm in Halton County which at that time was on the edge of the wilderness. It can be assumed that he spent his youth — as farm boys have from time immemorial — milking cows, helping to clear the land, raiding apple orchards and attending, perhaps reluctantly, the local public school.

He entered Victoria College, Cobourg, in 1854, when he was 17 years of age, with the intention of obtaining a degree in arts, but recurring ill-health prevented him from achieving that ambition. In 1858 he entered the dental office of Dr. W. C. Adams of Toronto and after two years as an indentured pupil opened his own dental office in the town of Milton, near his birthplace.

Always a methodical man, Willmott kept meticulous records of his

financial dealings. His account book, which has survived, gives many clues to the type of person he was, as well as some indication of his day-to-day activities.

At the end of the first year he summarized his financial position under a heading "Statement of the Result of First Year's Labour" and the use of the word 'labour' in this context is significant. It is a good old-fashioned word that was an integral part of his vocabulary; to

Professional Expense		
	13th January	\$243.49 1/2
Mar 6	Stage & Mail 1.00	1.00
	Food & Boxes for cattle	.2 1/2
" 9	Hotel 1.25. Rail 75.	2.00
	Stage 75. Cement 45.	1.20
	Travel Paper. f. Matches 12 1/2.	.17 1/2
" 25	Gold Plate 10 1/2. f. 11. f. 25.	.36
Apr 2	Advertising Journal	2.00
" 3. 6	Expense on Tour	2.19 1/2
" 9	Stage 25. f. 25	.25
" 14	Paid Hotel bill Printer	26.25
" 20	Cement 25. f. 10	.35
May 9	Stage Mail, Hotel.	2.00
" 11	" " "	2.62 1/2
	Cement 25. f. 12 1/2.	.37 1/2
" 17	Gold Plate	19.64
" "	Adams Valsamizing	1.00
	Travelling Expense	2.77 1/2
" 30	Gold Plate 5 1/2	57 1/2
		55.84

This page from Dr. Willmott's account book contains some of his meticulously recorded expenditure entries.

labour in the cause of his fellow men was, to J. B. Willmott, always a high ideal.

The whole amount he received for his first year was \$617.39. Professional expenses totalled \$563.14½; personal expenses \$66; donations to charity \$26.57. The inclusion of half-cents in the entries is evidence that 'York Shillings,' which were each worth 12½ cents, were still in circulation at that time.

Willmott rendered occasional assistance to other dentists. One entry is for \$16 received "for two weeks' work." The accounts make it obvious that he itinerated, performing dental treatment in Waterdown, Oakville and Dundas but always returning to his office in Milton. We know that he made these trips by buggy because there are entries covering the cost of repairs.

An entry of \$10 for a full upper and lower denture gives an indication of the fees charged in 1860. Another entry is for \$4 for a "book of gold foil" — a reminder not only of the techniques then in vogue but also of the cost of materials.

Whether, by the second year, he had improved the dental health of the people he served to such a degree that he was experiencing a shortage of work we do not know, but his receipts had diminished somewhat to \$560.34½. Professional expenses were \$417.56; personal expenses \$87.58; and charitable donations \$16.88.

The account book gives an indirect yet graphic picture of the kind of life an impecunious dentist beginning practice a little more than a century ago could expect to lead. The pleasures of the table were noticeably absent. That Willmott was fond of fruit and nuts is apparent from the frequency with which he bought them and there were also many items for biscuits. So we can imagine him, between appointments, partaking of frugal meals in his office although at that time a full restaurant meal cost only 25 cents.

That he spent much time reading is obvious from entries covering the cost of books. The titles of many of the books, such as *Life of Wesley* \$1.37½ and *Hymn Book* \$1.75, reflect his intense religious feelings, but there is also an entry of \$4.50, a relatively substantial amount, for a *History of Canada*. However, it should not be assumed that Willmott was an unduly bookish man. An item of 10 cents for "sharpening skates" indicates that he found time for sports and the frequency with which the cost of haircuts appears, as well as charges for "sharpening razor," indicates that he was fastidious about his appearance.

Occasionally he travelled further afield than the towns in which he



In the building at the left the Royal College of Dental Surgeons of Ontario opened a dental school in October 1869.



The Faculty of Dentistry, University of Toronto, traces its origin to a school opened November 3, 1875. From 1896 to 1909 this school was located at 93 College Street.

normally offered his services. One series of entries covers a trip to Quebec and return which he accomplished for a total expenditure of \$15.87. The implication is that he made the journey by water, down the St. Lawrence.

Willmott eventually became an ardent Liberal, making foes as well as friends, but nobody ever doubted his integrity or the honesty of his opinions. He became deeply involved in municipal affairs and in 1863 was appointed a Justice of the Peace. For three years he served on the municipal council; for two years of that time as Chairman of the Finance Committee. In September 1864 he married Margaret Bowes of Milton, a niece of a former Toronto mayor.

In the early 1800's — the era immediately before Willmott began practising in Ontario — dentistry was still not accepted in Canada as a legitimate profession. It was plagued by quacks and incompetents who inserted brazen advertisements in newspapers and on billboards but whose activities were often more harmful than helpful to the public.

Responsible dentists, using the latest materials and techniques for extraction and restorative treatment, suffered by association with these disreputable operators. What was required was a professional dental body backed by an Act of Parliament to regulate all dentistry in the province and thus eliminate abuses.

Dr. Charles Brewer, a Montreal dentist, had urged the incorporation of such a professional body but it was obvious that Upper Canada, having far more dentists, was the place where action could best be stimulated. Dr. Brewer urged Dr. B. W. Day, a Kingston dentist, to provide the required initiative. Dr. Day convened a meeting in Toronto, in January 1867, to consider the drafting of an act. Nine dentists responded to his call. Another meeting attended by some 32 dentists was held in Cobourg in July of the same year. There followed a third meeting in Toronto in January 1868.

Subsequently, by legislation passed in the Ontario Parliament on March 4, 1868, the profession was incorporated with the "truly loil" cognomen of the Royal College of Dental Surgeons of Ontario.

Thereafter, persons being British subjects by birth or naturalization who had five years' experience in established dental practice were granted the title Licentiate of Dental Surgery. Persons with only three years' experience were required to pass a prescribed examination. The Board of Directors of the Royal College of Dental Surgeons of Ontario was constituted as the Provincial Board of Dental Examiners for Ontario.

Any person commencing the study of dentistry in Ontario after

the passing of the Act was required to attend one session of the Dental College and to serve two years' apprenticeship.

Surviving records show that Willmott received Licence No. 42 from the Royal College of Dental Surgeons. Two years after the Dentistry Act became law, he was attending the Philadelphia Dental College, gaining further knowledge of his profession, and his qualities of leadership were already becoming apparent; he was chosen by his classmates to deliver the valedictory on Commencement Day — a rare honour for a student from another country. In March 1871 he obtained his Doctorate of Dental Surgery and moved to Toronto. He had taken no part in formulating the new regulations governing dentistry which had, by then, come into force. But in their implementation to the ultimate benefit of all Canadian dental practitioners he was to play a vital role since he was the one who not only realized that what was needed was a school to teach dentistry, but who took effective action to translate his ideas into a tangible form.

Several attempts to establish such a school had already been made and had proved abortive. In 1868, the year in which the Act was passed, it was proposed that a 'Canadian College of Dentistry' be established as a private undertaking, but nothing further was heard of it. In October 1869 the teaching department of the Royal College of Dental Surgeons organized a school with a class of two students, but it closed the following year because of lack of financing.

By 1872 examinations were being held in Kingston, Toronto and Hamilton. Dr. Willmott, who had been appointed Secretary to the Board of Directors in 1870, was the examiner in Toronto. The required subjects were orthography, English history and composition, English grammar, geography and arithmetic.

By 1875 the need for a school had become urgent — a fact that was recognized throughout the dental profession. At a meeting of the Ontario Dental Society (Association) held in Hamilton in July of that year the following resolution was adopted unanimously:

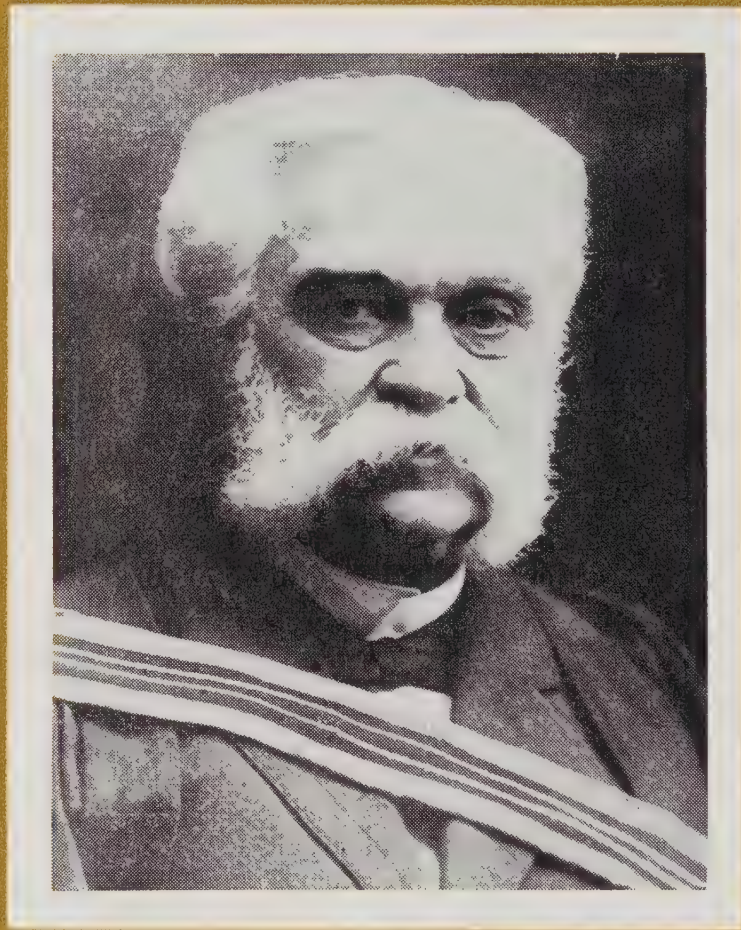
"In view of the admitted want of a dental school in this Province, this society earnestly recommends to the Board of Directors of the Royal College of Dental Surgeons of Ontario, as soon as possible, to avail themselves of the powers given them by the amended Dental Act, and take the necessary steps to establish a School of Dentistry in Toronto, and to aid it by such appropriation of funds as in their judgement may be expedient."

On receipt of this resolution, the Directors of the Royal College of Dental Surgeons of Ontario agreed to establish a school and asked

Dr. Willmott and Dr. Luke Teskey to undertake the task. The Directors offered \$250 toward the cost of furnishings and \$150 per annum for rent but declined any other financial involvement.

The School of Dentistry opened, with 11 students in attendance, on November 3, 1875, the year in which indentureship lasting three years was made mandatory. Dr. Willmott filled the chair of operative and mechanical dentistry and he was subsequently to teach these subjects to hundreds of students, at first in two rented rooms at 46 Church Street, Toronto, and later, after several moves to progressively larger premises, in a handsome building on College Street.

In 1878 the high school entrance examination was made the quali-



fication for entry and by 1880 a teachers' third-class certificate was demanded.

In 1888 the College made a major advance when it became affiliated with the University of Toronto. At the University convocation on April 22, 1889, the profession of dentistry was, for the first time, actively represented among the body of graduates when 25 candidates were admitted to the degree of Doctor of Dental Surgery. In that year the Latin option was required with a third-class certificate and in 1896 the standard was raised to junior matriculation or its equivalent.

Throughout the period 1875-1893 the school was conducted under the auspices of the Royal College of Dental Surgeons, but the fees paid by the students went to the faculty whose members assumed all financial responsibility. By 1893, with 90 students attending the school, its financial obligations had greatly increased and it became an integral part of the Royal College of Dental Surgeons.

Several dentists now retired still have fond memories of those days around the turn of the century when Dr. Willmott was their mentor. Dr. G. H. Campbell of Orangeville, Ontario, remembers him well. "He was a very upright man — very much in earnest," recalls Dr. Campbell. "I never saw him smile and never heard him crack a joke. He was about five feet nine or ten inches tall and not heavily built. He never grew stout. He had sideburns and was quite grey when I first saw him but he never seemed to get any older."

A particular bane of Dr. Willmott's life at that time was the prevalence of practitioners who advertised themselves as 'New York Painless Dentists' in offices on Yonge Street and Queen Street, Toronto. Living in an age when cocaine was the only local anaesthetic, Dr. Willmott would tell his pupils, "The man who advertises painless dentistry is a liar, a thief and a rogue. If you must hurt your patient, for his own good, then hurt him."

Dr. Campbell also recalls very vividly an incident which resulted in him being expelled from the school and subsequently reinstated by Dr. Willmott. It was the culmination of a series of pranks which began when Dr. Teskey, lecturing in a room below one occupied by a particularly noisy class, said, "I wish some person would go up and stop that infernal racket upstairs." The entire class arose as one man and charged upstairs, using the request as an excuse to begin a 'hustle.'

The near-riot that ensued led to later retaliation that involved one class being doused with water from a fire hose. Unfortunately, the hose was made of cotton that did not become watertight until it was thoroughly soaked. The resulting flood was greater than the drains

could cope with and caused considerable damage.

Campbell was selected as the ring-leader. He recalls, "The following morning I was told to visit the Dean's office and he gave me the most severe lecture I have ever had in my life. My father was pretty strict but he was mild compared with Dr. Willmott. The next morning I was expelled. But both the classes that had been involved in the fracas insisted that everybody was to blame and that if the expulsion was carried out then they should all be expelled with me. So the Board held a meeting and decided to let us off with a fine of \$5 each, which at that time was almost tougher than expulsion. It certainly put an end to the fooling around."

Although Dr. Willmott apparently took life rather seriously, his nature was such that he could tolerate the jokes and pranks of his students, if not with equanimity, at least with some measure of tolerance. The written records of the speeches he made, particularly those he gave at commencement and graduation, show him to be a man of some erudition; they were heart-to-heart talks which expressed sentiments as valid today as they were when the talks were delivered. But in class, perhaps under the pressure of trying to instruct sometimes inattentive groups of boys, he was apt to stumble in expressing himself, making circumlocutions and slips-of-the-tongue which his pupils delighted in bringing to his attention.

During the lessons, students were compelled to sit in silence. But it was customary for them to submit written questions at the end of the lesson on any points which they did not understand. Dr. C. E. Brooks who, like Dr. Campbell, remembers very well his days at the school, recalls Dr. Willmott explaining in one lecture that, in view of the time it took to make continuous gum porcelain dentures and the difficulties involved in repairing them, it was advisable that a vulcanite denture be made at the same time "for the patient to fall back on" in the event of breakage of the more fragile porcelain versions. One student submitted the question, "In the event of the patient falling back on the vulcanite denture would there not be some danger of it being broken also?"

Dr. Brooks recalls, "The Dean had a way of slapping the side of his head with a peculiar wrist motion to express his exasperation. That was one occasion when he did it with particular feeling!"

On another occasion, during a lecture on operative dentistry, Dr. Willmott recommended a certain root canal treatment after which, he said, the canal "might then be filled with impunity." Inevitably came the question, "What brand of impunity do you recommend?" But,

like Queen Victoria, Dr. Willmott was not amused!

A deeply religious man, born of Methodist parents, Dr. Willmott was a very active worker for the Metropolitan Church in Toronto where he filled, at various times, virtually every position open to a layman. Many stories were told of his hatred of tobacco and intoxicants. In a 1901 commencement address he said, "Permit me to say publicly what you have heard me say privately, that other things being equal, he who keeps himself, his clothing and his rooms free from the odours of tobacco will have greatly the advantage of him who uses the weed. In this connection I trust it is wholly unnecessary to refer to the use of intoxicants — intemperance and success in dentistry are utterly incompatible. . . ."

In a country as vast as Canada, with only the limited means of communications available in that era, it was inevitable that dental associations would be organized initially on a regional basis. But by the turn of the century it had become obvious that there was a need for a national organization to pool the knowledge of all Canadian dentists and provide them with a forum. So was born the Canadian Dental Association.

The first meeting was held at McGill University in September 1902. It was attended by about 200 dentists, approximately 20 per cent of the total number in the profession in Canada at that time. A code of ethics was drafted, and the two main topics discussed were the formation of a national Dominion Dental Council to facilitate licensure in all provinces and the establishment of a Canadian Dental Corps to provide dental care for the armed forces. The necessity for the latter had been emphasized by experiences in the Boer War which had just ended, but it was not until the 1914-1918 war that the Corps was founded.

The officers elected at the first meeting of the Canadian Dental Association were: President *pro tempore*, Dr. F. A. Stevenson of Montreal; President-designate, Dr. J. B. Willmott of Toronto; Secretary, Dr. Eudore Dubeau of Montreal. By 1903 Dr. Willmott was listed as CDA president. Thus he achieved the highest elective office in the Canadian dental profession.

Dr. Willmott eventually became widely known, not only in Canada but in the US and Europe, as a representative of Canadian dentistry. He was an honorary member of the British Dental Association and Canadian representative in the National Association of Dental Faculties in the United States. He also served in the Senate of the University of Toronto and was from 1905 an 'honorary consulting member' of the Dominion Dental Council.

At the annual commencement exercises of the University of Toronto, held during the afternoon of Friday, June 5, 1914, the honorary degree of Doctor of Laws *honoris causa* was conferred on Dr. Willmott. The following year he was taken ill with a stomach ailment from which he failed to recover. He died June 14, 1915, in the Toronto General Hospital at the age of 78 years.

Dr. Willmott's love for the dental profession and his deep feelings of its importance had perhaps been best expressed in 1896 at the opening of the new building at 93 College Street when he presented a paper which read, in part:

"In an hour or so His Honor the Lieutenant-Governor will declare this building opened. For what purpose? Not to educate men to practise a specialty of medicine, but to educate dentists. Dentistry cannot properly be considered a specialty of medicine. It is true that it is a branch of the healing art, but it has not grown out of medicine; it forms no part of the curriculum of medical schools; it has received no aid from medicine as a profession, though individual physicians have rendered it great service.

"In its genesis and history, no closer relationship can be traced than that as an adjunct of medicine it covers an important field in the great healing art for which medicine has not in the past, does not now, and is not likely in the future to make any provision. Dentistry has grown up outside medicine. It has organized its own colleges. It has its own textbooks, its own literature, its own periodicals, its own societies and its own appliances.

"Though, compared to general medicine, it occupies a very narrow field, it has a score of unsolved problems, in which all members of the human family are deeply interested, to the solution of which the brightest and ablest of men might well devote their thought and energy. . . . Buildings and material equipment do not make efficient educational institutions; that depends on teachers. . . ."

John Branston Willmott was a highly skilled dentist, but that alone could have never brought him the lasting fame he eventually achieved.

His chief characteristic was an all-consuming desire to share with younger people the knowledge he had gained from his own years in practice. To further the development of dentistry in all its aspects — in particular, to raise the ethical and educational standards of the profession — became his life mission. Largely through his efforts, particularly in the late 1800's, dentistry in Ontario and across Canada made great strides in a relatively short period of time.

Sir Geikie

Dentist, teacher, artist, mountain climber, boat builder, skier and photographer — Dr. Harry Ernest Bulyea has been all of those. At 94 years of age he is probably the oldest dentist in Canada and can look back on a full life that many might envy. He has lived in peaceful retirement since 1942 — the friend of countless practising dentists who owe much of their success to his skill and knowledge and, perhaps even more important, to his ability to impart knowledge to others.

Dr. Bulyea was born in Central Cambridge, Queens County, New Brunswick, on June 14, 1873. He took his secondary schooling at the Superior School, MacDonald's Corner — the equivalent of a modern high school. The name of the school emanated from the teacher, who possessed what was known at that time as a 'Superior Teachers Licence.'

An older brother had graduated from a proprietary dental school in 1891 and opened an office in Brookline, Massachusetts. After finishing school, the younger Bulyea joined him, working mainly in the laboratory. But after a time his increasing interest in dentistry prompted him to seek admission to the Boston Dental College which he entered in 1894.

Dr. Bulyea remembers the turmoil that the college was experiencing at that time. There had been many complaints about the behaviour of the faculty, one of whom was an Irish ex-policeman who had obtained a dental licence and always insisted on meeting new patients. He had a crude wit and many people considered his remarks offensive. One lady complained to her physician, who in turn passed on the complaint to the Board of Governors of the college.

The long-range result of this incident was that the college formed an affiliation with Tufts University and eventually was converted into a highly respected institution. But long before that happened Bulyea, with a classmate named Chelsey, had left the college and persuaded Harvard to admit them. Their success in their attempt to enter Harvard was due, in part, to the influence that Bulyea's older brother had with the Dean.

There was some discussion about whether Bulyea had sufficient qualifications to enter Harvard. Initially he was asked to pass five medical subjects but it was eventually agreed that if he could pass three subjects in the regular first year of medicine he would be allowed to enter. Full credits were given for his laboratory work. He subsequently passed four of the five subjects and the following spring took

all examinations for all three years and passed.

To pay for his courses — the fee in 1897 was \$200 — he had to continue working in the laboratory until he could pass the state board examination, which he did in the December of his final year.

By then he had become so proficient with gold foil fillings that he was said to have been able to insert them even in the dark. In his final year he carried his first orthodontic case to completion and also treated a fractured mandible with complete success. Dr. Henry Baker, his instructor in orthodontics, was the inventor of intermaxillary elastics and wrote what is believed to have been the first article on orthodontics ever published. So the instruction that Bulyea received was obviously sound.

After one year in Jamaica Plains, New Brunswick, Bulyea moved to Saint John, where he stayed until 1904. In that year he moved to Saskatchewan, registering with Dr. W. D. Cowan, the registrar of the Northwest Territories, for a fee of \$50.

Dr. Bulyea practised in Saskatoon until 1909 and then in Scott, Saskatchewan, until 1911. Eventually, for a variety of reasons, he decided to abandon dentistry entirely and went to Vernon, British Columbia, to try his hand at fruit farming. Fortunately for the dental profession the venture was unsuccessful.

In Calgary about that time a Dr. H. A. Gilchrist who, by a fortuitous circumstance, had attended the same Superior School at the same time as Bulyea and had apparently remained familiar with his progress, felt that Edmonton needed an orthodontist. He sent a telegram to Bulyea and when they met he suggested that Bulyea go to Northwestern University in Chicago for graduate training. This Bulyea did, taking courses in orthodontics and radiology. He returned to become the first dentist specializing in orthodontics in Alberta. He also introduced block anaesthesia, demonstrating the technique to many Alberta dentists, and he imported the first dental x-ray machine to be used in the province.

At the time Bulyea began practising in Alberta, a rudimentary program of dental education was already established, and it was only by a curious sequence of events that he was drawn into the academic life that proved to be his true metier.

At the University of Alberta, dentistry first came under consideration as a subject to be taught when the Senate adopted the Dental Association Bill on December 14, 1911. On April 4, 1912, a Board of Examiners was appointed and a list of approved dental schools was drawn up.

On January 21, 1916, a plan for interned students who wished to be licensed to practise dentistry in Canada was adopted on the recommendation of the Board of Examiners. The indentured students were required to write examinations at the end of each year. The examination papers were set by the members of the Board of Examiners and the subjects were: first year — anatomy, physiology and histology; second year — anaesthesiology, bacteriology, dental medicine and surgery; third year — pathology, orthodontics, periodontics and therapeutics; fourth year — operative dentistry and prosthodontics. Only the first two years were offered by the University of Alberta. It was arranged that undergraduates who completed them would be admitted to the third year at the Royal College of Dental Surgeons at the University of Toronto or to McGill University. They could then complete the requirements for the Doctor of Dental Surgery degree by doing the remaining two years' work at those institutions.

World War I disrupted most studies but in the fall of 1918 three students were admitted to the course at the University of Alberta and in 1919 a class of more than 20 students was admitted.

At first, the course was provided entirely by the Medical Faculty. Dental students attended lectures along with the medical students, taking subjects intended to conform to the requirements of the first two years in Toronto and McGill. However, no purely dental subjects were given until well into the 1919-1920 term.

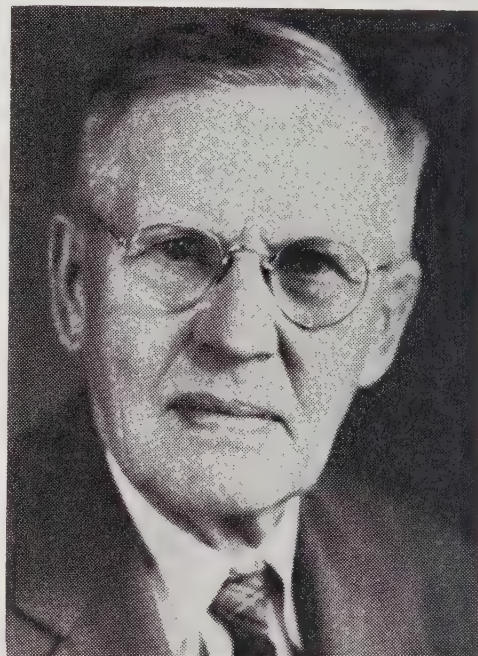
By then it had become apparent that Toronto and McGill would require, in addition to credits in subjects taught by the Medical Faculty, credits in such subjects as operative dentistry, prosthodontics and dental anatomy. In addition to the laboratory course, lectures on these subjects were essential.

The President of the University of Alberta, Dr. Henry Marshall Tory, on realizing this to be the case, invited Dr. Bulyea and Dr. L. L. Fuller to take over the teaching of the purely dental subjects. Dr. Bulyea was asked to take operative dentistry and dental anatomy and Dr. Fuller was invited to take prosthodontics.

Reminiscing about those early days, Dr. Bulyea says, "Just why I came to be invited into the University puzzled me for a long time. I was only slightly acquainted with Dr. Tory when he 'phoned me one afternoon about the middle of the 1919-1920 university term and asked me whether I would consider giving some instruction to dental students — some of whom were by then well into the second year of the professional course. To me, this was a completely unexpected request and I did not feel at the time that I could consider the proposition. I

was about to say so when he suggested, very tactfully, that before I gave a decision, I should see him in person so that he could explain matters more fully."

A meeting was arranged the following morning. Dr. Bulyea remembers asking many questions without getting any very definite replies but it was indicated that he would be working under Dr. Tory and the Dean of Medicine.



Harry Ernest Bulyea as he was in 1948. Right, recent picture of Dr. Bulyea.

Dr. Bulyea felt at first that he might not have the experience that was required for the position, but at a subsequent meeting, along with Dr. Fuller, he agreed to fill in until the end of the term. However, he did not take a regular appointment so that he might be free to step out at the end of the term if he so desired.

The appointments ultimately proved satisfactory to all concerned. During the early part of the next summer, along with Dr. Fuller, he was asked to continue for another year. Both consented.

Dr. Bulyea eventually concluded that he had originally been approached to take the position as a result of his association with a clinic conducted by nine physicians and three dentists, of whom Dr. Bulyea was one. Dr. Heber Jamieson, who was one of the group, was also on the Medical Faculty at the University. In conversation with Dr. Bulyea one day he had mentioned that there were a number of dental students in his class, but they were receiving instruction only from the teaching staff of the Medical School. Dr. Bulyea hinted that Toronto

and McGill would require, as qualifications for entry into the third year which had been arranged for them, some evidence of their having taken courses in dental techniques.

Dr. Bulyea says, "I believe my good friend Dr. Jamieson must have reported to somebody at the University what I had said, because shortly afterward Dr. Tory called me. I cannot think of any reason why I should have been thought of for the position except through a recommendation by Dr. Jamieson — plus the fact that I had unknowingly put myself in line. This is merely supposition on my part because at the time I never thought of discussing the matter with any of the people involved."

In establishing the new courses there were many difficulties to be faced. Some of the students were half way through their first term. Even more serious was the fact that the earlier class of students was already in the middle of its second year. It was obvious that these students would be deficient in technique when they went elsewhere for their final years.

There were also physical problems — particularly the absence of suitable premises and equipment. To permit the classes to be established, makeshift accommodations were provided in the old Engineering Building. Lectures were given wherever temporary accommodation could be found.

Fortunately, both Dr. Bulyea and Dr. Fuller were resourceful men. While Dr. Bulyea collected equipment to help in teaching dental anatomy and operative dentistry, Dr. Fuller assembled a makeshift prosthodontic outfit. The services of Mr. Frank Parry, at that time western representative of the Dominion Dental Company of Canada whose headquarters were in Toronto, proved particularly helpful and most of the problems were gradually alleviated.

The early shortage of teaching equipment also extended to textbooks, of which none were available. So Dr. Bulyea made drawings of teeth and distributed photographic copies to each of the students to help them understand the lectures. The lecturers used large-scale versions which gave the students a good conception of the forms of the teeth to guide them in carrying out restorative work.

During the first year students were assigned the task of carving models of teeth from plaster casts, and at a later date of carving teeth in natural size from ivory.

For the three men who were to go east the following fall, special classes had to be arranged after the close of the term so that they would have the required number of technical specimens to ensure their

admission to the third year at Toronto or McGill. The freshman class, having another term to spend before leaving Alberta, was able to catch up without undue difficulty.

Operative dentistry was taught by lectures and demonstrations, Black's system of cavity preparation being followed. Dr. H. E. Bulyea first appeared on the University calendar as an instructor in this subject in the 1920-1921 session.

In the summer of 1920 Dr. Fuller decided to retire and on Dr. Bulyea's recommendation Dr. H. A. Gilchrist, who was then practising in Calgary, was offered the appointment and eventually accepted.

Dr. Bulyea became an assistant professor on May 10, 1922. This was the first regular academic appointment in dentistry at the University of Alberta. Dr. Gilchrist was also given a permanent appointment and took over as lecturer in prosthodontics, Dr. Bulyea becoming senior of what was by then the Department of Dentistry under the Faculty of Medicine.

In 1923 a decision was made to offer the full program. The new curriculum, formally established during the summer of 1924, was modelled after that of the Harvard School of Dentistry from which Dr. Bulyea had graduated. Admission standards were raised and a pre-dental year was added to the four year professional course.

Extension of the program made more accommodation and equipment essential. Ten dental chairs with fountain cuspidors and swinging bracket tables adjoining each chair were installed and two additional chairs were set aside for anaesthetic and extraction cases. Other accommodation and equipment were provided but there were still many deficiencies and only seven students were admitted to the third year. All graduated at the end of the fourth year, in 1927.

The Department of Dentistry became the School of Dentistry in 1930 and eventually Dr. Bulyea, along with Dr. Gilchrist, advanced from assistant professor to full professor. Dr. Bulyea was appointed Director.

During the early 1930's many difficulties were experienced in financing the school. Various ways of raising funds were explored, including buying materials and supplies at a discount and selling them to students at a modest profit. But eventually, better government financing was provided and these difficulties diminished.

With Dr. Bulyea as Head of the Department, lecturing on operative dentistry, orthodontics and dental anatomy, the faculty was enlarged and the courses became firmly established.

The Department remained as the School of Dentistry until after

Dr. Bulyea retired, in 1942. It became a separate Faculty only in 1944.

In addition to his work as a teacher, Dr. Bulyea did some original research work in controlled casting of dental golds and in original cavity preparations. In 1927 he made presentations in Vancouver, and in 1928 he represented the Alberta Dental Association in Spokane with clinics on inlays. A bulletin by Dr. Bulyea entitled "Special Cavity Preparations and Casting Processes for Gold Inlays" was published by the Canadian Dental Research Foundation.

In spite of leading a very active professional life Dr. Bulyea found time to interest himself in several hobbies. His interests were wide-

Finger-shaped Mt. Geikie, middle, overlooks the ice-carved Ramparts astride the British Columbia-Alberta border, 16 miles southwest of Jasper, Alberta.



ranging. He was, above all, very fond of the outdoor life. Skiing was one of his earliest hobbies but mountain climbing became his first love. It is a pastime in which, living in Alberta and British Columbia, he was able to indulge himself with reasonable frequency. In 1917 he became a member of the Alpine Club of Canada.

For many years it was Dr. Bulyea's ambition to climb Mount Geikie, an 11,016-foot pinnacle sheathed in ice and snow, close to the British Columbia-Alberta border. He had been attracted to it while planning an assault on nearby Mount Robson.

His first attempt to scale the mountain was made with two companions in 1923. One of his friends wanted to make an approach over rocks along a snow-free arrêté that led to the summit. Considering this route too difficult, Dr. Bulyea suggested an alternative route up a couloir on the opposite side of the mountain and his companions agreed to try this first.

The three men climbed all day over frozen snow and steep rock faces, and up ice gulleys, finding precarious hand- and footholds in the granite. Bulyea had no fear of heights and on one occasion hauled one of his companions out of a seeming void with a 100-foot length of rope. But the bitter cold of a moonless mountain night overtook them while they were isolated on a rock ledge. They passed a most uncomfortable night, considering themselves lucky not to freeze to death.

The following morning they descended to safety but then headed upward once again along the route originally planned. They managed to get quite close to the summit but were unable to achieve the ultimate goal.

The following year Dr. Bulyea returned and this time managed to climb about 200 feet higher before once again having to admit defeat. But faced with such a challenge, it was inevitable that a man as determined as he was would eventually achieve victory. In 1930, after several more unsuccessful assaults on the peak, he finally made it to the summit — an exploit that earned him the alpinist's accolade of 'Sir Geikie.' He continued mountain climbing until 1937 when he was 64 years of age.

In spite of his rugged disposition Dr. Bulyea has always been an essentially gentle person. He became interested in painting as early as 1915, when he took lessons from William Johnson, a Scotsman living in Edmonton, and later from noted Calgary artist A. C. Layton and Miss Bessie Fry. Many of Dr. Bulyea's paintings have been displayed in major art exhibitions and he was a founding member of the Edmonton Art Association.

Another hobby in which he became interested was boat-building and he was also one of the early pioneers of colour photography.

In accordance with the policy of the University of Alberta, Dr. Bulyea was made a professor emeritus on retirement. He was presented with an honorary degree of Doctor of Laws *honoris causa* in 1960 on the occasion of the opening of the Faculty of Dentistry at the University of Manitoba.

On January 12, 1967, a dinner was held at the Faculty Club in Edmonton to honour him on the occasion of his 94th birthday. More than 50 close professional friends and former students were present. One former student who attended the dinner was a graduate of the first dental class held at the University. Five others present had graduated from the second dental class.

Dr. Bulyea has not only made a permanent niche for himself in the history of the dental profession; he has also, without neglecting his obligations to the profession, achieved distinction in several other fields as well. In so doing he set an example that may be emulated but is unlikely to be surpassed.

Dentists of the Cariboo Bonanza

In this Centennial year, Canadians are taking a greatly increased interest in their past. Which is one reason why tourists, particularly British Columbians, have flocked northward this summer to Barkerville.

Often described as a 'ghost town,' yet in reality never completely abandoned, Barkerville is a century-old collection of frame buildings — a typical old-style mining community that provides a fascinating reminder of British Columbia's humble origins. The town is being progressively restored and the refurbished buildings present visitors with a graphic picture of the kind of life led by the early pioneers who, in search of gold, carried civilization into the wilderness.

St. Saviour's Anglican Church, built in 1869, has always been maintained in an excellent state of preservation but Sandy McArthur's blacksmith shop, the old post office and courthouse, the carpenter's shop and several others had to be rebuilt to make them look as they did when first erected.

The restored buildings include many that once again provide a service

to visitors. You can buy a fresh-baked loaf of bread at the bakery, or a stick of 'long-lasting' rock at the candy store. You can order a drink (sarsaparilla or root beer!) at Kelly's Hotel and enjoy a good meal at Wake-Up Jake's Saloon.

But not all the buildings in Barkerville offer the services they originally provided. The proprietor of the general store does not sell miners' boots, bathtubs or baby buggies even though they are on display. In spite of the array of brushes and mustache cups in the barber shop, you can't get a shave there and nobody is allowed to smoke opium in the cabin built by Chin Fong, better known as Trapper Dan.

Nor can you have a tooth extracted at the dental office. But William Allen Jones, the dentist, is present not only in spirit but almost in the flesh, as a mannikin. In the reconstructed building he holds aloft a molar clasped in century-old forceps. His expression of pride and accomplishment, no doubt well justified, is in rather marked contrast to the look of anguish on the face of his mannikin patient who is apparently far from overjoyed even at the thought of having had his toothache permanently cured.

It is good to know that Barkerville, one of the first towns established in what is now British Columbia, is to be preserved and that the dentist who, even in that day and age, was already a valued and respected member of the community has been assured of his rightful place.

The town of Barkerville is a living reminder of one of the boom periods of Canadian history. It took its name from Billy Barker who struck gold in the Cariboo country on August 12, 1862.

Billy Barker was not the first to find gold in British Columbia. As early as 1858, almost a decade before Confederation, gold had been discovered in the sand-bars of the Fraser and Thompson Rivers. The first good strike was at Hope, near a Hudson Bay post 90 miles from the mouth of the Fraser. Then another big strike was made at Hills Bar, up the river about 15 miles where the village of Yale is today. By the early summer it was estimated that 25,000 miners and adventurers — men to whom the very word, gold, was an irresistible lure — had flocked into the area. They came from all parts of the globe, but the majority were Americans, many of whom were deserters from the Civil War.

British Columbia Governor James Douglas became apprehensive about this influx of thousands of men from across the border. Fearing that they might try to take over the gold-rich country, he asked for assistance from England and a company of 300 Royal Engineers was sent out. To maintain law and order a provincial police force was

established and Matthew Baillie Begbie, who was eventually to make a \$700 decision that would change the whole history of British Columbia, was appointed Chief Justice. He travelled on horseback all over New Caledonia, as British Columbia was then known, setting up Assize Courts.

The initial gold rush was short-lived. In a few months the sand-bars in the river had been washed clear and most of the fortune hunters began to drift away. Only a few hardier souls headed northward but among them was Billy Barker. We know that he was an English sailor who had deserted from the Royal Navy in Victoria, and from the fact that he was born in Cornwall it can be assumed that he had learned something of mining practices in the tin mines of his native country. He may have been in the Australian gold rush and possibly also spent some

Barkerville dentists knew St. Saviour's Church which dates back to 1869.



time in California since he certainly knew a great deal about the techniques of gold-mining and apparently had also acquired a basic knowledge of geology.

That Billy Barker was a rough and tough character is apparent from a newspaper report of a brawl in which he was involved. In April 1861 the *Daily Colonist* of Victoria, BC, reported "William Barker was arrested on a charge of threatening to stab Mr. Townsend at the Victoria Hotel." But the police magistrate apparently did not take a very serious view of the offence. Billy was let off "on his own recognizance to be of good behaviour."

Whether he actually took part in the Fraser River gold rush is not known positively, but in 1862 he was prospecting for gold at Williams Creek in the Cariboo country where a rich strike had been made by William Dietz, after whom the creek was named.

Upstream from a point on the creek known as the Canyon considerable quantities of gold had been taken. Downstream nobody had achieved any success, although many tries had been made.

Drawing on his rudimentary knowledge of geology, Billy Barker reasoned that the water carrying gold through the Canyon must have deposited some further along in the quieter reaches downstream. With six other Englishmen he formed a company with the expressed intention of digging to a depth of 100 feet — a project that would not have been feasible for one man working alone.

The surface of the claim the miners staked out near the river was rough, but they eventually cleared the land and began digging. Their limited facilities for moving the earth did not include any provisions for lifting heavy boulders from the shaft; so if they encountered a particularly large boulder they had no recourse but to dig a cave in the side of the shaft and bury it.

At 35 feet the mine still showed no promise and their supply of food was exhausted. They had gone as far as they could on their limited finances.

Many other miners had found themselves in this predicament — so many that Judge Begbie had been authorized to give assistance to anybody who needed it by providing the funds to enable them to return to civilization. The Judge informed Barker that he could advance the group \$700 — \$100 per person. But he also gave them a broad hint that even after they had received the money he had no way of actually forcing them to leave the claim.

The sudden influx of capital was more than welcome. Instead of abandoning the mine, Barker and his companions used the money as

a supplementary grubstake. Digging continued.

A few days later Barker, alone at the bottom of the shaft, was heard to grumble "Another boulder!" But what he actually uncovered was a pocket of heavy gold nuggets.

He must have had a sense of humour, because it is recorded that he simply loaded the gold into the bucket as if it was no more than dirt, then waited for the reaction among the other members of the group when it was hauled to the surface.

The local Gold Commissioner, T. Elwyn, subsequently wrote to his chief in Victoria: "I hasten to report the discovery of the Williams Creek lead at a point on the creek about a quarter of a mile below where, until this last discovery, it was lost.

"At a distance of about 40 feet from the surface, Messrs. Barker and Company have found a stratum of gravel and slate lying immediately upon the bedrock, which, as far as they have yet tested it, yields an average of about a third of an ounce of gold to the pan of dirt."

The response of "Messrs. Barker and Company" to their discovery was as might have been expected. Bishop Hills of Victoria, who kept a diary while he was travelling in the Cariboo country about that time, recorded "They all went on a spree for several days, except one Englishman, well brought up." The name of the well brought up member of the group was not recorded but it is improbable that it was Billy Barker.

In the years that followed the Barker claim became the focal point of the Cariboo gold rush. A two-mile stretch of Williams Creek gave up \$30 million in gold; in all its length the river yielded about \$50 million.

It also gave birth to Barkerville.

A torrent of money poured into the town. Miners who had struck gold were able to pay a dollar for a loaf of bread or a bottle of beer. Soon there were 15 saloons, a dozen stores, two banks, a post office and several stables. There were even two industries — breweries!

With the rapid growth of Barkerville, there was an obvious need for a doctor and a dentist.

In 1862 the 'Tynemouth' docked in Victoria. The ship's surgeon, a Dr. Chipp, MRCS and LMSSA of London, travelled to Barkerville and practised both medicine and dentistry there around 1864-1866.

We have no detailed record of Dr. Chipp's activities, but the *Cariboo Sentinel*, which came out every Thursday and cost one dollar per copy, carried a few advertisements, and among those published on July 9, 1866 was one placed by a Mr. D. Lewis, a talented coloured gentleman from Ontario. He offered, for a modest fee, to clean, fill, or extract teeth.

We know that he was something of an entrepreneur because he ran a barber shop and bathhouse in addition to his dental practice. Which of his enterprises was most successful is not recorded but it is a reasonable assumption that the community made full use of all three.

We can imagine Mr. Lewis extracting teeth and barbering perhaps with equal facility — improving the health, the appearance, and hopefully the demeanour, of the rough miners to whom these civilizing attentions must have been very welcome relief considering the kind of life they normally led.

In British Columbia, prior to March 1886 when a regulatory act was passed, there were no restrictions of any kind on the practice of dentistry. Training was acquired in a haphazard fashion and there seemed nothing incongruous about combining dentistry, barbering, and the operation of a bathhouse.

There is even some evidence that blacksmiths did dental work. In those days the blacksmith was in the vanguard of technological progress and one of his tasks was the fashioning of forceps for horses. It was not much more difficult to make miniature versions that became primitive dental tools. Human nature being what it is, it would have been reasonable for a blacksmith, having made the tools, to have wanted to try his hand using them.

The primitive methods of extraction naturally required an anaesthetic. Since liquor was both plentiful and potent, and not entirely unfamiliar to most miners, it was certainly the obvious and perhaps the only logical solution. The extent to which the extraction was painful or pleasurable was no doubt in direct proportion to the quantity of anaesthetic imbibed.

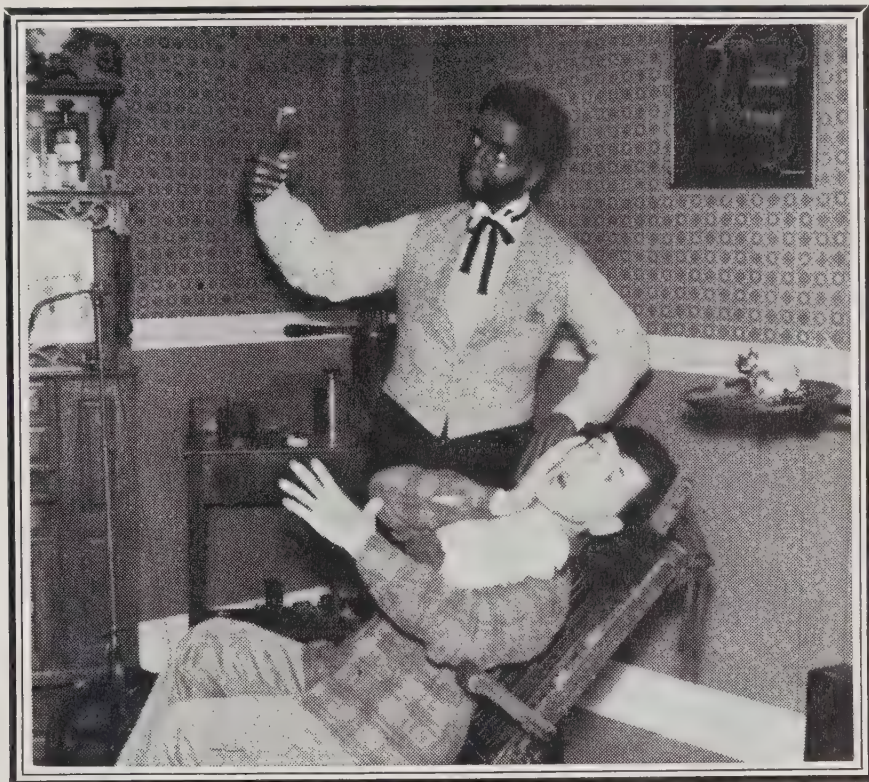
Advertisements placed by the early dentists were vivid and blatant. But as Barkerville gradually acquired the veneer of sophistication befitting a town of several thousand people, they became relatively subdued and more advanced forms of treatment were offered.

Dr. J. F. Grady, a surgeon-dentist who spent the summer of Confederation year in Barkerville, advertised that he was able to extract teeth painlessly, using a Khigolene Spray. From later mentions in the press at New Westminster, to which town he removed the following year (perhaps as a result of the disastrous 1868 Barkerville fire), we know that he was highly regarded.

A Dr. Daniel Siddall, who also advertised his services in the *Cariboo Sentinel*, describing himself as the 'American Eclectic Physician,' offered to treat all kinds of dental diseases. He guaranteed to clean teeth of tartar and announced that he could put false teeth on a gold

plate. On March 6, 1872, the newspaper informed its readers that Dr. Siddall had made the first set of mineral teeth ever set in vulcanite in the Cariboo.

How many others practised dentistry in Barkerville during those early years we shall never know. But William Allen Jones, the coloured



A mannikin representing William Allen Jones displays the doctor's skills in this refurbished dental office at Barkerville.

gentleman from the West Indies and now reincarnated in the refurbished dental office, certainly worked there for many years. He also did some mining although whether he achieved any success is not recorded. He had received dental training in England, and had been to California. In the British Columbia Directory of 1877-1889 he was listed as a miner but in recognition of the skills he had acquired as a dentist he was granted a licence on June 26, 1886 under the British Columbia Dental Act of that year. He had the distinction of being the first person to register under the act. His mortal remains, with those of his brother with whom he lived for many years, now lie in nearby Cameron Claim Cemetery.

Like most boom towns, Barkerville eventually went into a long slow decline. The surrounding Cariboo country prospered with the establishment of more mines, lumber mills and huge cattle ranches, but the town itself diminished in size and many of its buildings were eventually

abandoned to the elements.

Although its population went down from 7,000 to less than a hundred the town was never completely deserted. Fred J. Tregillus, who arrived in Barkerville in 1886 at the age of 23 years, made a living in the town for 76 years — with time out for a trip around the world in 1904 on the proceeds of a \$20,000 strike.

With Canada's maturing sense of identity, the historical value of buildings that have survived from the early days has gradually been realized. Antler, Keithley and Camerontown, along with other British Columbia gold rush towns, have already disappeared. Barkerville was obviously worthy of preservation. By 1958 the British Columbia Centennial Committee, encouraged and assisted by the Cariboo Historical Society and many individual residents of the Barkerville area, had formulated plans to restore and refurbish as many as possible of the old buildings.

In 1961, when work on the project was well under way, Dr. L. King Grady of Vancouver spent a day browsing through the old buildings and heard of the intention to reconstruct the dental office. Dr. Grady (no relation to the Dr. Grady who practised in Barkerville) comments "The curator told me that they were anxious to get going on the dental office and that donations of old equipment would be welcomed. It seemed a worthy cause."

He was able to give the project a good send-off by donating a century-old dentist's cabinet — an elegant piece of furniture typical of its era.

Subsequently, the British Columbia Dental Association began to take an interest in the project and members were encouraged to donate old equipment and assist in setting up the dental office.

Further items were gradually assembled into the display — a chair, instruments, anaesthetic equipment — so that present-day visitors can get an excellent idea of the state of the profession at the time of Confederation. Donations of dental equipment are still welcomed and there are hopes that more will eventually be received.

And what happened to Billy Barker, whose luck, business acumen and knowledge of geology started it all? He is said to have taken \$600,000 out of his claim but, unfortunately, he met another kind of gold-digger. He was living a life of ease in the mild climate of Victoria during the winter freeze-up in the Cariboo, when the ship 'Rosedale' was wrecked on Race Rocks. Among those who came ashore was an English widow, Mrs. Elizabeth Collyer. He met and eventually married her, and at the spring break-up in 1863 took her back with him to the

Cariboo country. But times had changed. His cabin was now surrounded by more than a hundred others, and Barkerville was on the way to becoming the second largest town west of Chicago. Being a heavy drinker he spent freely, and when all his money was gone his wife left him. Although he continued to search for gold, his luck never returned. Penniless, he eventually took a job as a cook for a road gang. He died in the Old Men's Home in Victoria, on July 11, 1894, and is buried in Ross Bay Cemetery. A memorial plaque has recently been placed on his grave.

But the community to which Billy Barker gave his name, moribund for more than half a century, has now come back to bustling life. To visitors, its reconstructed dwellings, stores and offices are evocative of times long gone. It is fitting that dentistry, which British Columbia recognized as a profession during the time that Barkerville was a boom town, should be properly represented among the professions, trades and crafts so graphically illustrated in the reconstructed town.



Dr. Willmott made this small wooden dental cabinet while living on his parents' farm near Milton, Ontario, before he became a dentist.

Yesterday and tomorrow

The roots of twentieth century Canada lie deep in the traditions of many peoples. First, there were the Indians, now all but gone. They were supplanted by Gallic and Anglo-Saxon explorers and settlers. They, in turn, absorbed others of German, Ukrainian, Italian, Dutch and other stock. But it is the men from St. Malo and Bristol who stamped the character of our nation. The die was cast one hundred years ago.

There were close to four million people in the new Confederacy of 1867. Their forbears had come to carve a new life on these shores. Settlers from Brittany and Normandy and the British Isles, loyalists from the American republic to the south—they had come to clear and cultivate new land. Thus, eight out of 10 Canadians were engaged in agricultural pursuits in 1867. Despite 2,150 miles of existing railway, the steam locomotive was still a relatively new invention, the first Canadian railway having been built a scant 30 years before Confederation. The Grand Trunk line linking Toronto to Montreal was completed in 1858. Its passengers could still marvel at a 14 hour trip that previously required five days in a jolting dusty stage coach.

There were about 200 dentists at the time of Confederation. Most of these pursued their calling in towns and hamlets scattered from the shores of the Atlantic to the lower Great Lakes, but there were also a few practitioners on Vancouver's Island. Except for the Red River Colony, western Canada was not settled. It was still a time when buffalo, in teeming thousands, roamed the land between the Cypress Hills and the confluence of the Bow and Belly Rivers. To the east, Montreal was a flourishing city of 100,000 souls. Toronto was nearly half as big as Montreal. Saint John, New Brunswick, was larger than Halifax.

Then, as now, Canadians found politics the most exciting thing in the world, and, next to religion and clearing the land, the most important. The issues that animated them prior to 1867 bear a remarkable resemblance to contemporary debate over the form and character of the nation's governmental institutions. Quebec's population had long been larger than that of Ontario, but this pattern had lately been reversed. For two decades these two components in a united government of Upper and Lower Canada had engaged in a contest as each tried to gain a dominant influence in the pre-Confederation Parlia-

ment. These difficulties were now to be resolved under the new federal constitution.

Compared with the larger perspective of Confederation, the achievements of dentistry seem insignificant. Yet we recognize several familiar names among the dentists of that day. Aldis Bernard, George Beers and Stephen Globensky were prominent in Montreal. Fredericton's Cyrus Fisk was a man to be reckoned with in the Maritimes. And Ontario produced its share of notables — the remarkable Barnabus Day of Kingston who was a contemporary of Sir John A. Macdonald; Chittenden and Bogart in Hamilton; O'Donnell of Peterborough; Callender in Cobourg; Wood from Picton; Lalonde of Brockville; Scott and Snider in Toronto; and that grand old entrepreneur, Relyea, in Belleville.

Where did these dentists live? How did they come by their knowledge and skills? Where did they practise? Some — the more prominent among them — practised in the towns where they lived. But the country folk did not necessarily suffer on that account. They were visited by itinerant dentists who carried their hand-fashioned instruments from place to place, dispensing such care as lay within their competence. Normally, these 'tramp' dentists gained their knowledge from a short sojourn in another dentist's practice before setting out on their own. At first, they did little else but extract teeth. The advent of amalgam extended their scope and some at any rate must have acquired considerable technical skill. They probably rendered a useful service, for without them, there would have been no one to minister to the needs of the countryside.

The distinction between travelling and resident dentists is, of course, blurred since many of the latter also followed limited circuits of their own. Moreover, few dentists restricted themselves to the pursuit of their vocation. Most of them had to have other sidelines — from running a bath house to operating a telegraph office — in order to make ends meet. Dentistry was not a lucrative profession in 1867.

Permanent practices, where these existed, were usually located near the centre of the community where the owner would be at the very hub of trade and commerce. It was not unusual for the dentist to hire someone to stand outside his premises and give out handbills proclaiming the virtues of his employer. In one respect these dentists differed sharply from their modern counterparts: staunch individualists, they always practised alone. Bitter rivalry sharpened by the animosities which characterized the attitudes of dentists to each other militated against the sharing of premises — and possibly patients — with a

colleague. Under the circumstances, we must admire the Days and the Bernards; they must have possessed remarkable talents for organizing their confrères into respective provincial associations.

Equipment in those days consisted of hand instruments — some of them as bizarre as they were ingenious. Some instruments were ostentatiously displayed — no doubt in order to impress a credulous public. There was a great variety of hand drills which many of the dentists designed and made for themselves. One of these worked like a present-day hand operated wood drill. But, for the most part, dentists used files and long hand burs which they rotated with the thumb and index finger — a slow and painful business that did not encourage proper cavity preparation. One dentist is reputed to have devised a primitive treadle engine, but such refinements did not come into general use for another decade.

Those who could afford it possessed a massive, rigid, upright dental chair. The real pièce de résistance was a pail with a nickle plated cover. Its rather uncertain odour stamped it as a spittoon. The instruments were accommodated in a case, rather than a cabinet. It was to be some years yet before a cabinet maker would turn out the first dental cabinet.

An Ontario dentist, Dr. Chandler of Newcastle, is reputed to have been the earliest dealer in dental supplies. He was the grandfather of Mr. Howard Harris, the present chairman of the Board of Directors of the Toronto-based Ash Temple Company. Prior to 1860, dentists had to travel considerable distances to Philadelphia, New York and Boston in order to acquire information about new techniques and bring back new instruments. Being an enterprising man, Chandler began to return with quantities of instruments which he acquired during such visits to the United States, disposing the surplus to his colleagues. As business prospered, he began to send out circulars by mail. His advertisements appeared in the *Canada Journal of Dental Science* during 1869.

New forms of gold — crimp gold (1851), sponge gold (1853) and cohesive gold (1855) — had been introduced as a dental filling material prior to Confederation. Rubber dam, recommended by Barnum in 1864, was not yet widely used. The first automatic mallet was patented in 1866, but dentists were slow to adopt this new instrument. Treatment with gold restorations was consequently laborious and restricted to the comparatively few who could afford it. For the rest, there was tin foil and amalgam. But the amalgam of 1867 bore little resemblance to the precision alloys in use today. Some dentists even made their own material by filing down silver coins. The resulting fillings expanded until they extruded from the teeth or cracked them. To the itinerant

dentists amalgam was like manna from heaven. It permitted them to stuff the silvery alloy into so-called cavities — a much simpler procedure than the more painstaking restorations of gold and tin. There is no question that this early amalgam was badly abused. Some dentists refused to have anything to do with it, regarding its use as thoroughly unethical. Controversy raged here as in the United States, with the principal protagonists tilting at each other through the pages of the medical and dental press. Another 30 years were to pass until G. V. Black was to confer the cachet of respectability upon this important filling material.

Prior to the introduction of vulcanite, dentures were made by riveting or soldering platinum pins in porcelain teeth to a silver or gold plate. In a few favoured patients porcelain gum sections enhanced the appearance of the denture. To G. V. N. Relyea goes the credit for bringing the first vulcanizer to Canada in 1859. Eight years later, vulcanite dentures were already quite common. Once, again, they were particularly espoused by the itinerant practitioners.

Though nothing was known of local anaesthesia, nitrous oxide general anaesthesia enjoyed fairly widespread acceptance. Jacob Neelands of Lindsay, Ontario, is believed to have been the first to use this agent. We know that he fashioned an ingenious inhalator out of a spigot from a beer barrel or vinegar barrel.

When dentists encountered a case of acute oral infection, the wisest course was to leave it alone until the swelling or other distress had subsided. A few daring practitioners resorted to the use of external poultices, thereby encouraging the inflammatory process to track and discharge externally and leave an unsightly scar. But as a rule, it was expedient to let matters take their natural course and extract offending teeth at a later date.

We know that a few dentists managed to charge \$20 and even \$40 for artificial dentures. But they were the exceptional practitioners who catered to the nobility of the day. Most surviving account books tell a rather different story, and there is little doubt that literally thousands of dentures must have been made for \$15 or \$10. The pursuit of dentistry was not rewarding. That is why so many of its followers had other sidelines. A dentist would be considered wealthy in 1867 if his annual professional income exceeded \$1,000.

Help was not easy to come by. Chairside assistants, dental hygienists and competent laboratory technicians were, of course, unknown. Some dentists, however, had indentured aides whom they called 'assistants.' The latter were sometimes pitifully rewarded and shamefully exploited

under the terms of a contract whereby the dentist undertook to teach them in return for their services and labour. The assistants, in turn, would only stay long enough to acquire the rudiments of knowledge before striking out on their own.

Despite this, the dentists of 1867 needed to be made of stout stuff. One cannot study the history of dentistry in Canada without experiencing a sensation of admiration and pride in the legacy inherited from these hardy individualists. Without them, our emergence as a profession would have been an infinitely more protracted affair.



St. Lawrence Hall, the pride of Toronto, where the fledgling Ontario Dental Association on January 21-23, 1868 adopted a proposed bill to incorporate the dental profession in Ontario.

The events which have occurred since 1867 are now a part of history. What lies ahead is open to speculation. No one can foretell what the next hundred years may bring, but some trends are clearly discernible.

The rising tide of education will surge onward. The disposable share of personal incomes will grow. Systems for the purchase and

delivery of health care will become more complex and diversified. There will be greater emphasis on the general health aspects of dental care for the entire population — from infancy to old age.

One near-term consequence will be the formulation of programs for early and definitive care for all children as they pass from one age level to the next. As a corollary, the general practitioner will be required to render more preventive services. Orthodontics and periodontics will come to the fore as we gain complete mastery over dental caries.

In the hospital, the dentist will take his place alongside other members of the health team — not only in oral surgery but in general medical management, and he will gain status similar and equal to that of other medical staff.

Solo practice will yield to the greater efficiency and economy of group practice. Groups of dentists and physicians will practise in medical-dental centres situated close to interurban transit systems and to hospitals for the convenience of patients and staff. These centres will be equipped with electronic computers to aid in diagnosis, accounting and record keeping. In fact, proliferating prepayment and welfare schemes and the displacement of money by universal credit card systems will make the early installation of rapid data processing machinery mandatory.

Physicians' and dentists' incomes will likely be regulated to some degree by government and geared to the cost of living. Only non-essential commodities will move on the free market without price control. As dental education costs soar, the state will increasingly subsidize education at the undergraduate, postgraduate and graduate levels. Dentists who receive such subsidies will be required to repay part of the cost by service in government health installations or from subsequent earnings.

The dentist will be expected to keep pace with scientific developments in his field. His days as the sole arbiter of his professional ability will be numbered. The pressure for competence will come first from within his own profession which must assure society that dentists are constantly expanding their knowledge and skills. If this voluntary method fails, the state will establish minimum standards and requirements for the retention of a licence to practise.

Interstellar explorations will have a profound effect on dental science and technology. New lightweight metals and plastics, capable of withstanding extremes of temperature and pressure encountered in space, will be adapted for use in dental equipment and materials

Microscopic electrical circuits, bearings and switches now used in space vehicles will no doubt find application in dental apparatus. As more is learned about how astronauts react to auditory, optic and proprioceptive stimuli under conditions of stress, these findings will also be applied to the performance of dental and surgical operations. This will be reflected by modification of dental engines, chairs and lighting equipment. Other forms of dental equipment yet unknown may be suggested from the research of the astrophysicists. Perhaps these may take the form of noiseless nuclear-powered miniature dental engines, panoramic fluoroscopes, instant ultrasonic implosion sterilizers, and cutting laser beams.

Our scientists will give us more versatile and potent drugs. The control of apprehension and anxiety will be instantaneous. These newer agents will require much closer regulation and supervision by the government.

Vaccines will be developed to combat some forms of periodontic disease. Degenerative forms of this disease will be retarded by biochemical means. Universal fluoridation and self applied fluoride formulations will help to diffuse fluoride ions throughout the enamel. Future generations of Canadians will therefore have teeth with almost pure fluorapatite. Enamel adhesives applied to all newly erupted teeth will provide further protection by sealing all caries-susceptible pits and fissures. Life-like, non-metallic, adhesive restorative materials will be used to restore any decayed tooth to its original form and appearance.

There will be startling advances in the replantation of whole teeth or roots bearing life-like crowns. Implantation of newer lighter metal alloys will become more widespread and will revolutionize complete prosthodontics. Electronic devices will be introduced to the dental laboratory, replacing some of the handicraft in the fabrication of appliances. There will be fewer dental technicians, but they will be more highly skilled and their products will boast greater precision and accuracy.

Expanding health education and treatment will require more people to support the dentist in an ancillary capacity. We may expect that these auxiliaries will be granted more and wider authority for the services they perform at the direction of dentists. Simultaneously, the attack on dental disease will gather momentum as a growing army of investigators pushes back the frontiers of dental science. Individual research will give way to projects that marshall the collective skills and resources of many related disciplines for a massive assault on particularly stubborn problems. This will require vast sums of money. Since much of the money will come from the state, we may expect government to exercise more control and direction by favouring those

projects whose results are likely to be beneficial for society at large.

The fantastic burgeoning of science will be reflected by a parallel growth in the volume of scientific publications. A world-wide network of news and information services will sift and abstract material to be communicated in books and journals. Additional information will be transmitted by coast-to-coast closed circuit television to every dentist and physician in the nation. The written and printed word, because of its permanent form, will nevertheless prevail. But dental literature will have to be more compactly edited and produced lest the channels of printed communication become hopelessly clogged.

There is an endless catalogue of wonders to be gained through building a better world where all people will be better fed, better housed and able to live in abundant good health. Sustaining this perspective will be possible only if we have the courage to probe within ourselves as well as into space. Our contribution, indeed our survival as a profession, depends on the ethical and spiritual enlightenment we bring to bear on the challenges that lie ahead.

Many dentists who are in practice today will blaze a path for the profession into Canada's second century. We hope that those who follow them will be reading the *Journal of the Canadian Dental Association* when this nation completes its second centennial in the year 2067!

Le passé et l'avenir

Le Canada du XX^e siècle a des racines profondes dans les traditions de nombreux peuples. Il y eut tout d'abord les Indiens, maintenant presque disparus. Les explorateurs et les immigrants français et anglo-saxons les supplantèrent. Puis ils absorbèrent, à leur tour, des Allemands, des Ukrainiens, des Italiens, des Hollandais et autres. Mais c'est l'homme de St-Malo et de Bristol qui a donné son caractère à notre nation. Les dés étaient jetés, il y a cent ans.

La nouvelle Confédération comptait près de quatre millions de Canadiens en 1867. Leurs ancêtres étaient venus sur ces rivages à la recherche d'une vie nouvelle. Gens de Bretagne, de Normandie et des Iles britanniques, loyalistes de la République américaine, au sud, ils étaient venus défricher et cultiver un pays neuf. Et huit Canadiens sur 10

s'occupaient d'agriculture en 1867. En dépit des 2,150 milles de rails, la locomotive à vapeur était une invention relativement nouvelle, le premier chemin de fer canadien ayant été construit quelque 30 ans seulement avant la Confédération. La ligne importante reliant Toronto et Montréal fut terminée en 1858. Ses passagers s'émerveillaient de la brièveté de ce voyage de 14 heures, qui demandait auparavant cinq jours de diligence cahoteuse et poussiéreuse.

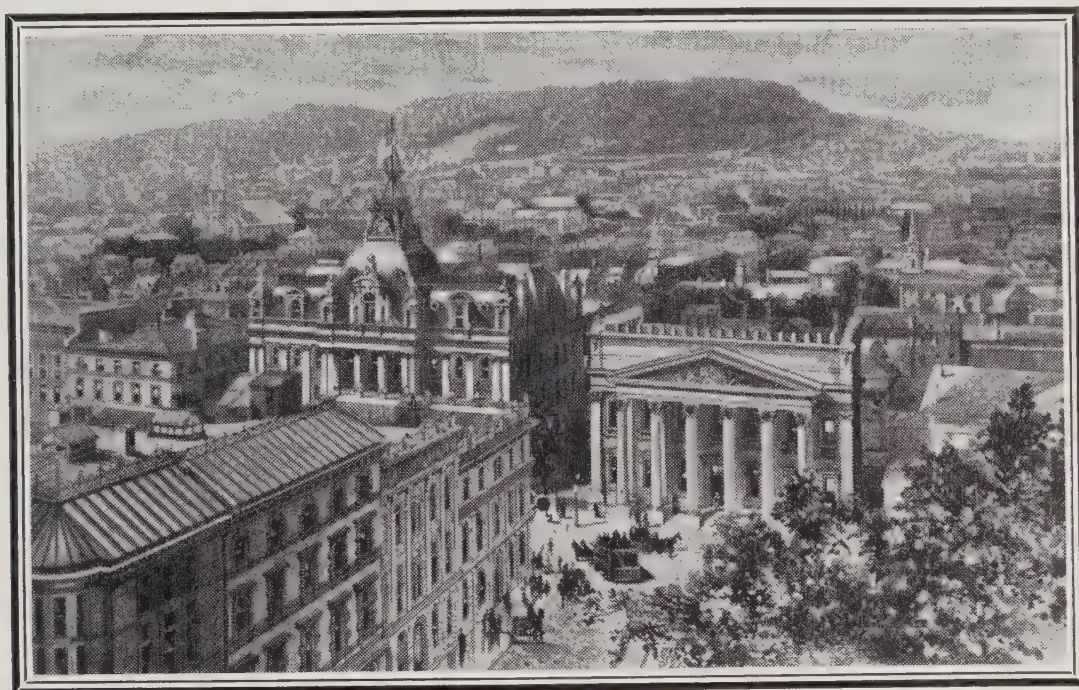
Au moment de la Confédération, il y avait environ 200 dentistes. La plupart d'entre eux exerçaient leur profession dans les villes et villages disséminés du littoral de l'Atlantique aux rives sud des Grand Lacs, mais il y avait aussi quelques praticiens sur l'Ile de Vancouver. A l'exception de la colonie de Red River, l'Ouest du Canada était peu peuplé. C'était encore l'époque où les bisons parcouraient par milliers les terres entre les Collines de Cyprès et le confluent des rivières Bow et Belly. A l'est, Montréal était une ville florissante de 100,000 habitants. Toronto avait, à peu près, la moitié de l'importance de Montréal. Saint-Jean, au Nouveau Brunswick, était une plus grande ville que Halifax.

Alors, comme aujourd'hui les Canadiens avaient le goût de la politique, qu'ils considéraient après la religion et le défrichement des terres, comme la chose la plus importante au monde. Les questions qui les passionnaient, avant 1867, ressemblent singulièrement aux débats contemporains sur la forme et le caractère des institutions gouvernementales de la nation. La population du Québec a été pendant longtemps plus importante que celle de l'Ontario, mais cette situation a changé depuis. Pendant 20 ans, les deux éléments du Haut et du Bas Canada ont été en concurrence, chacun essayant d'avoir une influence prépondérante dans le parlement d'avant la Confédération. La nouvelle constitution fédérale devait résoudre ces difficultés.

Comparées avec la perspective plus vaste de la Confédération, les réalisations de la dentisterie sont négligeables. Nous reconnaissons cependant des noms familiers parmi les dentistes de cette époque. Aldis Bernard, George Beers et Stephen Globensky étaient bien connus à Montréal. Cyrus Fisk, de Fredericton, était un homme à ne pas ignorer dans les Maritimes, et l'Ontario a produit son compte de personnalités éminentes: le remarquable Barnabus Day, de Kingston, qui était contemporain de Sir John A. MacDonald; Chittenden et Bogart, à Hamilton, O'Donnell, de Peterborough, Callender, de Cobourg, Weed, de Picton, Lalonde, de Brockville, Scott et Snider, de Toronto et cet innovateur remarquable, Relya, de Belleville.

Où vivaient les dentistes à cette époque-là? Comment acquiéraient-

ils leurs connaissances et leur formation? Où pratiquaient-ils? Quelques-uns, les plus éminents d'entre eux, pratiquaient dans les villes où ils vivaient. Mais les gens des campagnes ne souffraient pas nécessairement de cet état de choses; ils recevaient la visite de dentistes itinérants qui transportaient leurs instruments de fabrication artisanale d'un endroit à l'autre, rendant des soins dans la mesure où leur compétence le leur permettait. Généralement, ces dentistes ambulants tenaient leurs connaissances d'un bref séjour chez un autre dentiste, avant de s'établir à leur compte. Au début, ils se contentaient d'arracher les dents. Avec l'utilisation des amalgames, leur champ d'activité s'étendit et quelques-uns d'entre eux, tout au moins, devaient être arrivés à une grande habileté technique. Ils rendaient sans doute des services nécessaires car, sans eux, il n'y aurait eu personne pour s'occuper des gens de la campagne.



Montréal vers 1880. Perspective prise du haut des tours de la cathédrale de Notre-Dame, à travers la Place d'Armes.

La distinction entre les dentistes itinérants et les dentistes sédentaires n'est d'ailleurs pas nette, car un grand nombre de ces derniers rayonnaient eux-mêmes sur un territoire limité. En outre, peu de dentistes s'adonnaient à leur profession à temps complet. La plupart d'entre eux faisaient autre chose, qu'ils aient dirigé une maison de bains ou qu'ils se soient occupés d'un bureau de télégraphe, afin de boucler le budget. En 1867, la dentisterie n'était pas une

profession lucrative.

Des pratiques permanentes, lorsqu'elles existaient, se trouvaient généralement près du centre de la ville et le dentiste était en plein milieu de l'activité commerciale. Il n'était pas rare que le dentiste engage un homme qui se tenait à la porte du cabinet et distribuait des imprimés proclamant les vertus de son patron. En un sens, ces dentistes différaient de leurs collègues modernes; profondément individualistes, ils travaillaient toujours seuls. Leur rivalité acharnée et la concurrence qu'ils se faisaient les empêchaient de partager des locaux et éventuellement des patients avec un collègue. Dans ces circonstances, nous devons admirer les Day et les Bernard; ils doivent avoir eu des talents remarquables pour avoir pu organiser leurs collègues en associations provinciales.

L'équipement, à cette époque, était manuel et certains instruments étaient aussi bizarres qu'ingénieux. Ils étaient exposés ostensiblement, sans doute pour impressionner un public crédule. Il existait une grande variété de fraises manuelles, souvent conçues et fabriquées par les dentistes eux-mêmes. Il y en avait une qui fonctionnait comme les perceuses à bois manuelles que nous employons aujourd'hui. Mais les dentistes se servaient surtout de limes et de fraises qu'ils faisaient tourner entre le pouce et l'index, une opération lente et pénible qui ne prêtait pas à une bonne préparation des cavités. On raconte qu'un dentiste avait inventé un moteur primitif à pédale, mais ce sont là des raffinements qui ne devaient se généraliser que 10 ans plus tard.

Ceux qui pouvaient se le permettre possédaient une chaise dentaire massive, rigide et verticale. La vraie pièce de résistance était un seau avec un couvercle de nickel. Son odeur incertaine le désignait comme le crachoir. Les instruments étaient placés dans un coffret plutôt que dans un meuble; il allait falloir attendre plusieurs années avant qu'un fabricant ne produise le premier placard dentaire.

Un dentiste de l'Ontario, le Dr. Chandler de Newcastle, est censé avoir été le premier négociant en fournitures dentaires. Il était le grand père de M. Howard Harris, le président actuel du conseil d'administration de la compagnie Ash Temple, dont le siège social se trouve à Toronto. Avant 1860, les dentistes devaient voyager sur des distances considérables et se rendre à Philadelphie, New York et Boston pour obtenir des informations sur les techniques nouvelles et se procurer de nouveaux instruments. Chandler, qui était entreprenant, commença à rapporter quantités d'instruments de ses visites aux Etats-Unis pour les vendre à ses collègues. Lorsque son affaire prospéra, il envoya des circulaires par la poste. Ses annonces publicitaires figurent dans le *Canada Journal of Dental Science* de 1869.

L'or sous de nouvelles formes — or gaufré (1851), mousse d'or (1853) et or cohésif (1855) — fut mis sur le marché avant la Confédération, en tant que matériau de restauration. La digue recommandée par Barnum en 1864, n'était pas encore utilisée sur une grande échelle à cette époque-là. Le premier marteau automatique fut breveté en 1866, mais les dentistes mirent du temps à adopter ce nouvel instrument. Le traitement avec restauration en or était donc laborieux et réservé aux gens relativement peu nombreux qui étaient assez riches pour en bénéficier. Pour les autres, il y avait les plombages avec feuille d'étain et les amalgames. Les amalgames de 1867 ne ressemblaient en rien aux alliages de précision utilisés aujourd'hui. Certains dentistes préparaient leurs matériaux eux-mêmes en limant des pièces d'argent. Les obturations qui en résultaient se dilataient au point de sortir des dents ou de les fendre. Pour les dentistes itinérants, l'amalgame était un cadeau du ciel. Il leur permettait de presser de l'alliage d'argent dans les prétendues cavités, ce que était un processus beaucoup plus simple que les restaurations plus difficiles avec de l'or ou de l'étain. Il est certain qu'ils abusèrent des premiers amalgames. Certains dentistes refusaient complètement de s'en servir considérant leur usage comme contraire à une conduite professionnelle digne de ce nom. La controverse fut violente ici et aux Etats-Unis, les principaux protagonistes s'attaquant mutuellement dans les pages de la presse médicale et dentaire. Ce n'est que 30 ans plus tard que G. V. Black devait mettre un cachet de respectabilité sur cet important matériau.

Avant l'usage de la vulcanite, les dentiers étaient fabriqués en fixant des dents en porcelaine, par rivets ou soudure, sur une base d'argent ou d'or. Certains patients favorisés avaient des dentiers avec des sections de gencives en porcelaine, qui leur donnaient meilleur aspect. C'est à G. V. N. Relyea que revient l'honneur d'avoir importé au Canada, en 1859, le premier vulcanisateur. Huit ans plus tard, les dentiers en vulcanite étaient déjà très courants. Une fois de plus, ce sont les dentistes ambulants qui les adoptèrent avec le plus d'enthousiasme.

Bien que l'anesthésie locale n'ait pas été connue du tout, on administrait couramment une anesthésie générale au protoxyde d'azote. Jacob Neelands, de Lindsay, Ontario est connu comme ayant été le premier à l'utiliser. Nous savons qu'il avait fabriqué un inhalateur ingénieux avec la cannelle d'un tonneau de bière ou de vinaigre.

Lorsque les dentistes rencontraient un cas d'infection aiguë, le plus sage était de ne pas y toucher avant que l'enflure ou autres symptômes aient disparus. Quelques praticiens audacieux utilisaient des emplâtres externes, qui encourageaient la formation de fistules externes, ce qui laissait d'horribles cicatrices. En règle générale, il était plus facile de

laisser agir la nature et d'extraire plus tard la dent abîmée.

Nous savons que quelques dentistes parvenaient à obtenir \$20 et même \$40 pour les dentiers. Mais ils étaient rares et c'était ceux qui soignaient les notables de l'époque. La plupart des livres de compte qui nous sont parvenus peignent un tableau très différent et il est certain que des milliers de dentiers ont été faits pour \$15 et même pour \$10. La dentisterie n'était pas lucrative, c'est pourquoi tant de praticiens avaient d'autres activités. Un dentiste était considéré comme riche en 1867, si son revenu professionnel annuel dépassait \$1000.

Il était difficile de trouver de l'aide. Les assistants, les hygiénistes et les techniciens n'existaient pas. Certains dentistes cependant avaient des apprentis qu'ils appelaient "assistants". Ces derniers étaient souvent très mal payés et exploités honteusement aux termes d'un contrat par lequel le dentiste s'engageait à les instruire en échange de leurs services et de leur travail. Les apprentis, à leur tour, ne restaient que le temps nécessaire pour apprendre les rudiments du métier avant de s'installer à leur compte.

Mais, malgré tout, les dentistes de 1867 doivent avoir été d'une espèce résistante. On ne peut étudier l'histoire de la dentisterie au Canada sans éprouver des sentiments d'admiration et de fierté pour ce que nous ont légué ces hommes farouches et individualistes. Sans eux, notre existence, en temps que profession, aurait été considérablement retardée.

Les événements postérieurs à 1867 font maintenant partie de l'histoire. L'avenir est matière à spéculation. Personne ne peut prévoir ce qu'apporteront les cent prochaines années, mais certaines tendances se distinguent clairement.

L'essor de l'éducation va continuer. La portion disponible des revenus personnels va augmenter. Les systèmes de demande et d'exécution des soins sanitaires vont devenir plus complexes et plus diversifiés. Nous insisterons plus sur les aspects généraux des soins dentaires pour l'ensemble de la population, du berceau à la tombe.

Une conséquence prochaine de ces tendances sera l'établissement de programmes de soins pour tous les enfants dès leur jeune âge et pendant leur croissance. Comme corollaire, on peut prévoir que la dentisterie générale rendra plus de soins préventifs. L'orthodontie et la périodontie prendront une importance de plus en plus grande, au fur et à mesure que nous maîtriseront plus complètement la carie dentaire.

Dans les hôpitaux, le dentiste prendra sa place à côté des autres membres de l'équipe, non seulement pour la chirurgie buccale mais dans la direction générale des services médicaux et son statut sera égal et similaire à celui du reste du personnel médical.

Les pratiques solitaires feront place à celles de groupes de dentistes, plus économiques et efficaces. Dentistes et médecins exerceront dans des centres médico-dentaires, à proximité des systèmes de transit interurbains et des hôpitaux, pour la commodité des patients et du personnel. Ces centres seront équipés d'ordinateurs électroniques qui les aideront



Le port de Montréal en 1867.

à faire leur diagnostic, à tenir leurs comptes et à établir les dossiers. En fait, la généralisation des programmes de prépaiement et de bien-être social, ainsi que le remplacement de l'argent par des cartes de crédit universelles feront une nécessité de l'installation prochaine d'un équipement d'ordination des données.

Les revenus des médecins et des dentistes seront vraisemblablement réglementés jusqu'à un certain point par le gouvernement et établis d'après le coût de la vie. Seules les commodités non essentielles continueront à être offertes librement sur le marché, sans contrôle de prix. Au fur et à mesure que le coût de l'éducation dentaire augmentera, l'Etat y contribuera dans une mesure de plus en plus importante, aux niveaux sous-gradué, post-gradué et gradué. Les dentistes qui bénéficieront de ces subsides devront les rembourser en partie, soit en exerçant dans des installations sanitaires du Gouvernement soit avec leurs revenus futurs.

Le dentiste devra continuer à se tenir au courant des développements scientifiques dans sa branche. Il ne continuera pas longtemps à être le

seul arbitre de sa compétence professionnelle. Les exigences dans ce domaine seront établies tout d'abord par sa propre profession qui doit garantir à la société que les dentistes améliorent constamment leurs connaissances et leurs moyens. Si cette discipline volontaire ne produit pas les résultats voulus, l'Etat établira des normes et des exigences minimum pour le renouvellement du droit de pratique.

Les explorations interstellaires auront un effet profond sur la science et sur la technologie dentaires. De nouveaux métaux et alliages légers, capables de supporter les températures et les pressions extrêmes de l'espace, seront adaptés pour l'équipement et les matériaux dentaires. Les circuits électriques microscopiques, les roulements et commutateurs employés maintenant sur les véhicules spatiaux trouveront sans aucun doute une application dans l'équipement dentaire. Au fur et à mesure que nous connaissons mieux la réaction des astronautes aux stimulations auditives, optiques et proprioceptives, dans des conditions difficiles, nous pourrons nous servir de ces renseignements pour les appliquer aux opérations dentaires et chirurgicales. L'une des conséquences sera la modification des moteurs utilisés en dentisterie, des fauteuils et de l'éclairage. Les recherches des astrophysiciens pourront aussi amener la création d'autres genres d'équipement dentaire encore inconnu. Peut-être prendront-ils la forme de moteurs miniatures silencieux qui fonctionneront à l'énergie nucléaire, de fluoroscopes panoramiques, de stérilisateurs supersoniques à implosion, avec effet instantané et de rayons laser.

Nos savants mettront à notre disposition des médicaments plus puissants à effets plus généraux. Le contrôle de l'appréhension et de l'anxiété sera instantané. Ces nouveaux agents demanderont une réglementation plus stricte et une surveillance gouvernementale.

Des vaccins permettront de combattre certaines formes de maladie périodontique. Les formes dégénératives de cette maladie seront retardées par des moyens biochimiques. La fluoration universelle et les auto-applications de formules fluorées aideront à l'action des ions de fluor à travers l'émail. Les générations futures de Canadiens auront ainsi des dents avec de la fluorapatite presque pure. Des adhésifs appliqués sur l'émail des dents nouvellement poussées les protégeront également en fermant les creux et fissures susceptibles de caries. Des matériaux de restauration, adhésifs, non métalliques et d'aspect naturel, seront utilisés également pour redonner aux dents abîmées leur forme et leur aspect originaux.

Il y aura des progrès remarquables d'accomplis avec la réimplantation des dents entières ou de racines avec des couronnes d'aspect naturel. L'implantation de nouveaux alliages de métaux légers deviendra de plus

en plus courante et révolutionnera complètement la prosthodontie. Des dispositifs électroniques seront installés dans les laboratoires dentaires et remplaceront la fabrication artisanale. Il y aura moins de techniciens dentaires, mais ils auront des connaissances plus poussées et leurs produits seront faits avec plus d'exactitude et de précision.

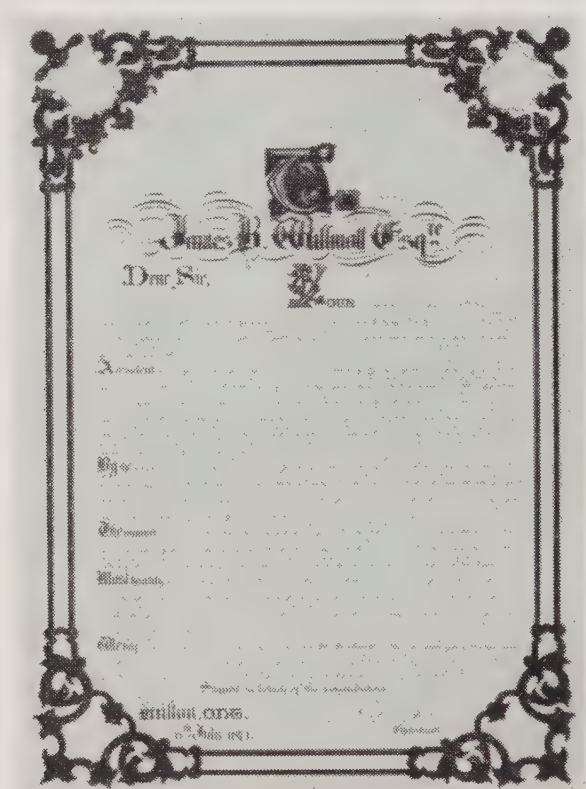
L'essor de l'éducation sanitaire et la généralisation des traitements demanderont un personnel ancillaire plus nombreux au service des dentistes. Nous pouvons prévoir que ces aides auront plus d'autorité et que cette autorité sera plus étendue quant aux services qu'ils performeront sous la direction des dentistes. En même temps, l'attaque des maladies dentaires s'intensifiera lorsque l'armée toujours plus importante des chercheurs fera reculer les frontières de la science dentaire. La recherche individuelle cédera la place à des projets qui demanderont les connaissances et les ressources collectives de nombreuses disciplines connexes pour attaquer de façon massive les problèmes récalcitrants. Ceci demandera d'importantes sommes d'argent. Comme une grande partie de cet argent sera fournie par l'Etat, nous pouvons nous attendre à ce que le Gouvernement exerce plus de contrôle et joue un rôle plus important en favorisant les projets dont les résultats seront pour le bénéfice de la société dans son ensemble.

L'extraordinaire activité scientifique se manifestera par une multiplication des publications scientifiques. Un réseau mondial de services, de nouvelles et d'informations filtrera et prélèvera la documentation qui sera communiquée sous forme de journaux et de livres. Des informations complémentaires seront transmises d'un littoral à l'autre par circuit fermé de télévision, à tous les dentistes et médecins de la nation. Les écrits et les imprimés domineront cependant à cause de leur forme permanente. Toutefois la littérature dentaire devra être éditée et produite sous un volume plus réduit pour ne pas embouteiller complètement les avenues de communications.

Nous pourrions continuer à énumérer les merveilles qu'offrira un monde meilleur que nous aurons construit, un monde où chacun sera mieux nourri, mieux logé et pourra jouir d'une très bonne santé. La réalisation de cette perspective ne sera possible que si nous avons le courage de regarder non seulement dans l'espace, mais en nous-mêmes.

Notre contribution et notre existence même, en tant que profession, dépendent de la façon éclairée, morale et spirituelle dont nous relèverons le défi, qui nous confronte. De nombreux dentistes qui pratiquent aujourd'hui ouvriront la voie pour la profession pendant le deuxième siècle de l'histoire du Canada. Nous espérons que ceux qui les suivront liront le *journal de l'Association dentaire Canadienne*, lorsque ce pays fêtera son deuxième centenaire, en l'année 2067.

The Journal expresses grateful appreciation to the many persons who contributed to this commemorative issue. For the stories about Gurdon Robert MacKay, Aldis Bernard, James Branston Willmott, Harry Ernest Bulyea and the dentists of Barkerville we are particularly indebted to Dr. W. C. King of Halifax; Dr. C. C. Bourne of Montreal; Doctors R. J. Godfrey and C. E. Brooks of Toronto and Dr. G. H. Campbell of Orangeville, Ontario; Dr. H. R. MacLean of Edmonton; and Dr. L. King Grady of Vancouver. The valued assistance of Dr. Don W. Gullett, who verified the historical information, is also acknowledged.



Le journal exprime sa reconnaissance aux nombreuses personnes qui ont contribué à ce numéro commémoratif. Nous désirons manifester, en particulier, notre gratitude aux Drs W. C. King, de Halifax, C. C. Bourne de Montréal, R. J. Godfrey et C. E. Brooks de Toronto, G. H. Campbell d'Orangeville, Ontario, H. R. MacLean d'Edmonton et L. King Grady de Vancouver, auxquels nous devons les articles sur Gurdon Robert MacKay, Aldis Bernard, James Branston Willmott, Harry Ernest Bulyea et sur les dentistes de Barkerville. Nous tenons à mentionner également l'aide précieuse apportée par le Dr Don W. Gullett qui a vérifié l'exactitude historique de ces articles.

Illustrations

The illustrations in this issue were provided through the courtesy of the following sources:

Nous sommes redevables des illustrations dans cette édition aux organismes ou personnes mentionnés ci-dessous:

Cover/Couverture: Ottawa. Parliament in 1882. Le Parlement en 1882
Miller Services, Toronto

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Toronto markets sketched from the Bay in 1871 (p. 14)
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Gurdon Robert MacKay and Florence Lydia MacKay (p. 17)
Shelburne-Durness Branch of the Clan MacKay by H. S. MacKay,
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St. James Street, Montreal, c. 1867 (p. 25)
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Montage from 1867 issues of the *Montreal Gazette* (p. 29)
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St. Saviour's Church, Barkerville, British Columbia (p. 61)

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William Allen Jones in the refurbished dental office at Barkerville
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Dr. J. B. Willmott's dental cabinet (p. 67)

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St. Lawrence Hall, Toronto, in the 1850's (p. 72)

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Testimonial certificate presented by the citizens of Milton to Dr. J. B.
Willmott in 1871, just prior to his removal to Toronto (p. 84)

Faculty of Dentistry, University of Toronto



Teachers for tomorrow

Canada's expanding medical and dental schools are scrambling to find good teachers. Their plight is accentuated by a world shortage of capable teacher-scientists. Nowhere has the startling need for additional money to attract medical teachers been more clearly defined than in the Gundy Report of 1965.¹ It recommended an immediate boost in 1966-67 federal spending from \$12.3 million to \$48.7 million and called for subsequent increases that would more than double estimated federal spending by 1970.

The Gundy Report dealt with medical education and research, but a parallel situation exists in dentistry. The reasons are obvious. It takes anything from three to five years to train a good teacher after he graduates from a dental school. Research programs provide the ideal training ground. But if opportunities to train are not available in Canada, the graduates move abroad and are often lost forever.

The Canadian government has shown a commendable awareness of the nation's need for expanded health services by committing \$500 million for new health teaching facilities through the Health Resources Fund. But this investment in bricks and mortar will be wasted without the necessary teacher-scientists of the highest calibre who must maintain our traditions of excellence. Dismayed by Ottawa's apparent reluctance to accept this fact, Canadian researchers this year formed their own association to quicken the flow of money for health research. This body, the Canadian Association for the Advancement of Health Sciences, intends to make the citizenry fully aware of the critical need for vastly increased support for health research. Dentists will warmly endorse this laudable aim, the more so since the profession is so ably represented on CAAHS by Dean K. J. Paynter of the College of Dentistry at the University of Saskatchewan. Better still, dentists can help CAAHS by repeating its message to persons of their acquaintance who may be in positions of influence.

Dental teacher-scientists acknowledge the value of collective action by joining with their colleagues from other health disciplines. No one will deny that individual scientists can still make exciting discoveries. But as with the prospector trying to find a mine, the chances of success increase with team work. And the ability of the team to train its successors is vital to the welfare of the entire nation. As dental research goes in Canada, so goes the quality of our dental schools and the quality of our dental care. Without research, the planning of future health services degenerates into a sterile exercise.

1. Woods, Gordon & Co. Medical research in Canada — an analysis of immediate and future needs (the Gundy Report). December 1965. Toronto, 1965.

Les maîtres de demain

Les facultés dentaires et médicales du Canada qui sont en pleine croissance ont un besoin urgent de professeurs. Le problème n'est pas nouveau, le monde entier a besoin de professeurs et de chercheurs. Le Rapport Gundy de 1965¹ a expliqué de façon non-équivoque qu'il faut dépenser beaucoup d'argent si l'on veut intéresser et qualifier des professeurs dans le domaine des sciences de la santé. On suggère des dépenses gouvernementales extrêmement importantes à ce chapitre.

Le Rapport Gundy traite de l'enseignement médical et de la recherche, mais une situation identique existe en dentisterie. Avant d'être prêt à commencer sa carrière d'enseignement, un professeur doit consacrer de trois à cinq ans à des études post-scolaires. Les laboratoires de recherche constituent un milieu idéal où peuvent se préparer les jeunes professeurs. Malheureusement, il y en a trop peu au Canada, et les jeunes diplômés doivent aller à l'étranger et ils sont souvent tentés d'y rester.

Les gouvernements sont au courant de la situation et la création d'un fonds de \$500 millions connu sous le nom de Fonds des ressources de la santé, constitue un grand pas en avant, et permettra de développer nos institutions d'enseignement dans le domaine de la santé. Mais tout cet argent qui servira à acheter des briques et du mortier sera perdu, si l'on ne produit pas en même temps des professeurs et des chercheurs de la plus haute conséquence auxquels reviendra la tâche de maintenir nos traditions d'excellence. Inquiets de voir les gouvernements hésiter avant de dépenser l'argent nécessaire à l'acquisition des ressources humaines dont nous avons besoin, les chercheurs du Canada ont formé cette année leur propre association, dont le but est de trouver les fonds dont a besoin la recherche dans le domaine de la santé. Cet organisme, l'Association canadienne pour l'avancement des sciences de la santé, se propose de sensibiliser la population à l'urgence des besoins financiers dans le domaine de la recherche sur la santé. Les dentistes endosseront sans doute cette initiative louable, d'autant plus que le représentant de notre profession à l'ACASS est le docteur K. J. Paynter, doyen de la Faculté de chirurgie dentaire de l'Université de la Saskatchewan. Chacun de nous devrait entrer dans la danse en essayant de convaincre son entourage de l'urgence des buts que poursuit l'Association canadienne pour l'avancement des sciences de la santé.

Les professeurs et les chercheurs de la profession dentaire reconnaissent la valeur des actions conjointes et se sont immédiatement unis à leurs collègues des autres professions de la santé. Bien sûr, des chercheurs isolés peuvent encore faire des découvertes importantes, mais les chances de succès augmentent énormément, si l'on s'adonne à un travail d'équipe. De plus, seule une équipe est en mesure de préparer ses propres remplaçants, et cela pour le bien général de toute la nation. La qualité de l'enseignement dentaire au Canada est facteur de la qualité de notre recherche dentaire. Sans la recherche, la planification des services dentaires de l'avenir ne saurait être autre chose qu'un exercice intellectuel absolument stérile.

1. Woods, Gordon & Co. Medical research in Canada—an analysis of immediate and future needs (the Gundy Report). Décembre 1965. Toronto, 1965.

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

Radiation Protection

To the Editor:

I am not at all happy with Dr. A. Schmidt's approach to radiation protection as expressed in his article, "Structural Shielding for Dental X-ray Installations," published in the August Journal.

Firstly, he assumes that we all take a certain number of radiographs per week, and then multiplies this number by a figure of two to 11.

Secondly, I direct the cone of my machine, set at 90 kVp and 15 mA and using a film to cone distance of less than one foot, through the plaster wall of my office. I have been unable to produce even the slightest fogging of film after 12 seconds of continuous exposure. However, my employees and I stand at least six feet away from the head during x-ray exposure, and well behind the wall mentioned.

Further, when taking radiographs, the head points approximately 90 and 130 degrees away from the operator for normal bitewing radiographs which are by far the commonest exposures. A normal extension of the lines created by the cone is hope-

lessly lost in a maze of partitions, cabinets and equipment.

Using these procedures, officers of the Department of National Health and Welfare tested my operation with film monitors and found the conditions to be safe. I therefore very strongly resent the inference that my office is unsafe because lead shielding was omitted in its construction.

G. A. Stocker, DDS,
3490 Saanich Rd., Victoria, BC.

Dr. Stocker's letter was referred to Dr. Schmidt who replied as follows:

To the Editor:

I have tried to convey in the text of my paper that the equivalent of one inch of concrete will attenuate radiation produced by low workloads to values which are legally acceptable and consequently most certainly 'safe' (first part of the discussion in my paper).

It was also demonstrated that 'average' and high workloads call for additional protection, 'average' being quoted by Mr. F. H. Yale as 1,200 mAs/week.

Dr. Stocker does not indicate whether his 180 mAs exposure represents a weekly workload. If it does, it is 15 per cent of what Mr. Yale calls an 'average.' At any event, the Department of National Health and Welfare survey has placed Dr. Stocker's office into a workload class for which the existing partition provides adequate protection.

A. Schmidt, Dr Ing, P Eng,
Radiation Protection Services,
Environmental Health Branch,
Ontario Department of Health.

Appreciate Dental Hygienist

To the Editor:

I would like to contact a dental hygienist willing to work for me and my associates. Our problem is just the opposite to that of the hygienist who protested in the September Journal about the lack of suitable employment.

We employed a hygienist for one year. She was accepted by our patients and her value to a complete dental health plan was

appreciated by the dentists in this clinic. For a year we have been unable to find a new hygienist interested in replying to our advertisements—and the replacement service has our name and address.

*M. N. Bye, DDS,
150 Seventh St. E., Owen Sound, Ont.*

To the Editor:

Reading the letter from the dental hygienist in the September Journal, I could not help but wonder. Here in the West we are in extreme need of her services. If she is unsatisfied with her present status, I suggest that she get in touch with any of the health departments of the western provinces, and in particular with Dr. A. T. Salter, Director, Dental Public Health, 303 Administration Building, Edmonton, Alberta.

The private practitioners of this area are just as anxious to obtain her professional services. She may be sure that she will be equally appreciated by the public and the practitioners.

*S. J. Fuzy, DDS, MPH,
Dental Health Officer,
Drumheller Health Unit, Alta.*

To the Editor:

I sympathize with the unemployed dental hygienist. Having just read her plea in the September Journal for education of the dental profession in the better utilization of dental auxiliaries, I am inspired to write my first letter to the editor. By coincidence, I noted in the same issue that dentists have slipped into a low fourth position when it comes to income, and that the gap between physicians' and dentists' incomes may continue to widen since the cost of physicians' services rose by 8.6 per cent compared to 2.5 per cent for dentists. It is a well known economic fact that sometimes it is necessary to spend a dollar in order to make two dollars. If the dentist will spend a little time and patience with these bright young women (and bright middle-aged women too) he will reap rewards beyond his wildest dreams and make his daily work far more pleasant and productive.

Here are just a few of the areas in which my own dental hygienist is most helpful: (1) taking all x-rays; (2) oral physiotherapy education; (3) prophylaxis (including fairly difficult scaling); (4) fluoride application; (5) resurfacing and polishing restorations; (6) placing and removing periodontic and surgical dressings; (7) removing sutures; (8) removing temporary crowns and polishing abutment teeth about to receive crowns and bridges; (9) making alginate impressions; and (10) removing cement and cleaning the tissues following crown and bridge place-

ment. A dental hygienist can also overlap the assistant's field to become a valuable 'super assistant.'

My two dental assistants are my second set of hand and eyes. I could scarcely work without them. They attend to maintenance, laboratory work and sterilizing. They also look after supplies and inventory.

My receptionist is equally indispensable. She maintains a consistent flow of patients and handles all appointments, bookkeeping and collections. However, she guards against unnecessary intrusion into my schedule.

In Calgary we have a good nucleus of dentists who know the value of well trained dental auxiliaries. We have a newly formed 'Dental Efficiency Discussion Group.' Our aim is to increase efficient production and enjoyment in a dental office. We hope to spread the gospel by educating dentists who have not yet grasped the idea of delegating certain less demanding tasks to skilled and willing team mates.

Finally, a word about the economics of this type of team work in a well laid out dental office. There isn't a dentist in this category who doesn't enjoy an income of from 50 to 100 per cent (or more) higher than the national average.

I would suggest that our disillusioned unemployed dental hygienist turn her eyes toward the west.

*R. M. Duncan, DDS,
306 Rideau Medical Dental Centre,
Calgary, Alta.*

Fort Steele Dental Office

To the Editor:

I thoroughly enjoyed and appreciated the space you gave the restored dental office at Fort Steele, British Columbia, in your October issue. Antique dental offices have been quite an interesting hobby for me during the last seven or eight years.

*L. K. Grady, DDS,
189 E. Hastings St., Vancouver, BC.*

Journal Cover for CFDE Month

To the Editor:

I read with much interest the October issue of the Journal and admired with pride the special cover in recognition of November being observed as 'Canadian Fund for Dental Education Month!'

*M. E. Bower, President,
The Dental Company of Canada Limited,
229 College St., Toronto, Ont.*

Forced air impression technique

T. J. Harrop,* LDS, DDS, MS, PhD, Vancouver, British Columbia,
and D. G. Middaugh,† BA, DDS, Seattle, Washington

By means of forced air, a thin film of mercaptan impression material may be dispersed over the surface of a tooth preparation without any voids. This additional step aids materially in securing consistently good results with elastic impression materials.

■

Il est possible, au moyen d'une seringue à air comprimé, de recouvrir les dents et les préparations de cavités d'une fine pellicule de pâte de mercaptan en éliminant tous les vides. Cette mesure supplémentaire permet d'obtenir régulièrement de bons résultats avec des pâtes à impression élastiques.

the suitability of mercaptan (thiokol) impression materials, and this article presupposes their accuracy and stability. Routine handling involves the application of a light-bodied injection material with an injection gun. This is supplemented by an overlay of heavy-bodied material.⁹ This procedure has proved successful in the majority of cases.^{1,7} In addition, we recommend the use of forced air during impression making in order to avoid the inclusion of trapped air bubbles on the cavo surface margins and within the preparation.

PURPOSE

The primary purpose of this method is to introduce the dental student to a relatively simple impression technique. The material is easy to manipulate. This reinforces the student's interest in splints, onlays and crowns while he learns how to handle other more complex materials and methods. This method can also be used by the general practitioner after two or three experiments with extracted teeth

Extensive inlay and bridge preparations require accurate impression techniques. Previous workers¹⁻⁸ have demonstrated

or typodonts. We believe that most dentists will be pleased with the results provided they observe the other requirements for obtaining consistently good rubber base impressions.⁸

METHOD

This procedure involves the use of the air syringe to spread the light-bodied impression material over the preparation (Figure 1). The tooth is prepared and the gingival tissue is retracted with rubber dam or impregnated cotton cord. In the example shown, an upper right central incisor is missing. The upper right lateral and the upper left central incisors are prepared for porcelain to gold crowns. In this instance, two gingival retraction cords of different diameters are used to displace the gingiva. The fine cord is in-

serted carefully to the depth of the gingival crevice, while the thicker one is placed around the tooth at the crest of the gingiva.^{10,11}

Suitable lengths of light- and heavy-bodied rubber base material are mixed, and while the injection syringe is loaded with the light-bodied material, the impression tray is filled with the heavy-bodied material. Immediately prior to applying the light-bodied material, the thick cord is removed and the tooth carefully dried.¹¹ This drying is an essential step and must be done carefully to avoid haemorrhage. The syringe tip is then placed in the most inaccessible area first and a small amount of material is expressed. The air syringe is now used to disperse this material. If the preparation is dry, it will leave a thin film of impression rubber. Additional material is then applied and again dispersed with forced



FIGURE 1 A stream of air can spread a thin layer of the impression material over the surface of the tooth to ensure complete coverage.

air. Care must be taken to direct the jet of air so that the gingival tissue is displaced away from the tooth and not against it.

Pin preparations should be filled with a small amount of impression material on the tip of a lentulo and whipped into the canals before the forced air is applied.

Once the preparation is covered in this fashion, the dentist should stop injecting the impression material for a moment while continuously blowing air on the preparation. The whole area should be examined to be sure that no entrapment of air, blood, or soft tissue has occurred.

This process takes approximately one minute leaving ample time to incorporate several preparations — even a quadrant perhaps — at one sitting.

The impression is completed by filling the remainder of the preparation with light-bodied material and seating the tray containing the heavy-bodied material over the arch of the quadrant.

In many cases the rubber dam need not be removed. In fact, it is advisable to leave it in place. When the material has set (eight minutes), it can be easily separated from the rubber dam. Care must be taken, however, to block out the rubber dam clamps with soft periphery wax to prevent the impression material from locking under the wings.

Upon removal, the impression should be washed to remove all traces of saliva and blood. The impression is dried immediately and a cast is poured as soon as is convenient. In no case should the impressions be left overnight before a cast is poured.⁶

SUMMARY

By judicious use of the air syringe, one may cover a tooth preparation with a fine film of rubber base impression material which may then be inspected to ensure that no voids result in the subsequent impression. This additional step in the handling of elastic impression materials reduces or eliminates the need for repeated impressions. The simplicity and ease with which consistently good impressions result warrants the inclusion of this method in everyday practice.

*Head, Department of Restorative Dentistry, University of British Columbia.

†Department of Oral Biology, University of Washington.

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*Department of Oral Biology,
University of Washington*



The historic village of Hope, on the banks of the Fraser River, is only 90 miles from Vancouver. Visit this picturesque spot when you are in Vancouver for the CDA National Convention in June.

Recent developments in restorative dentistry: 1966-67

This article presents the most recent significant information about dental restorative materials (amalgam, silicate cement, acrylic resins, composite epoxide resin); aesthetic restorations for deciduous incisors; pulp reactions following operative procedures; retention, cementation and stress analysis of dental castings; the action of eugenol upon sound dentine; and the effectiveness of prednisolone in relieving postoperative hypersensitivity.

■

Cet article décrit les progrès les plus récents dans le domaine des matériaux de restauration (amalgame, silicate, résines acrylique et d'époxyde), dans le domaine des restaurations esthétiques sur les incisives temporaires. Il traite des réactions pulpaires consécutives aux techniques de restauration, de la rétention et du scellement des incrustations, de même que de l'effet des forces qui y sont appliquées; aussi de l'action de l'eugénol sur la dentine saine, de même que de l'efficacité de la prednisolone pour soulager l'hypersensibilité postopératoire.

This article updates an earlier review of the subject published by McAdam in 1966.¹ The intent is to summarize new information accumulated during the intervening year. The topics covered include dental materials, restorative pro-

cedures in paedodontics, dentine and pulp reactions following operative procedures, dental castings, and medications.

Buonocore, Matsui and Yamaki² investigated abrasion characteristics of amalgam, silicate cement, a cold-curing acrylic resin (Sevriton, Amalgamated Dental Co.), a polyvinyl (epoxy) containing resin with glass beads (Addent, Minnesota Mining and Manufacturing Co.), a proposed anterior restorative material containing a synthetic hydroxyapatite filler (supplied by the L. D. Caulk Co.), and another experimental polyurethane material also containing a hydroxyapatite filler. Elephant ivory, to simulate human dentine, was used as a control. These investigators recorded the actual loss of material in a simulated clinical environment as well as the effect of abrasion on microscopic and macroscopic appearance. There was very little loss of material with Addent. However, microscopic examination revealed glass beads protruding from the worn down matrix, pits on the surface of the matrix where glass beads had been lost, and general surface roughness. Sevriton showed the greatest loss of material, but the loss was six times less than the ivory control. The addition of 18 per cent glass beads reduced the abrasion of Sevriton by a half. This could have an application when extensive Class V or Class IV cavities are restored with a cold-curing resin and when a heat-cured resin is employed for veneers.

Going and Sawinski³ determined initial leakage, leakage after thermal changes and leakage after storage of Addent and other commonly used dental materials (silver amalgam, gold foil, silicate ce-

ment, resinous materials [Sevriton; Bonfil; Kadon, L. D. Caulk Co.; Merdon, American Consolidated Dental Co.]). This was done in a simulated oral environment. The initial seal of Addent was similar to that of the cold-curing acrylic resins (Sevriton and Kadon) tested. Amalgam and silicate exhibited much greater initial leakage while gold foil showed slightly less leakage. No difference was observed between lined, primed, or sealed resinous fillings and unlined, unprimed, or unsealed resinous fillings. On subjecting the specimens to temperature variations, the acrylic resins showed a great increase in marginal leakage. For each degree change in temperature the acrylic restorations expanded and contracted seven times as much as the surrounding tooth. Microleakage around amalgam fillings diminished as the fillings aged in saliva. Addent and Sevriton also showed a decrease in marginal leakage, but the contrast was less since the initial seal was quite good. Kadon, however, showed a breakdown of the marginal seal after four weeks' storage in saliva.

Phillips⁴ mentions the continuing attempts at improvement of resin filling materials by the addition of fillers. To upgrade the physical properties, the matrix must adhere to the filler. With epoxy resin systems adhesion is accomplished by coating the filler with vinyl silane. Phillips compares epoxy resin (Addent) with acrylic resin (Bonfil). He points out that Addent, unlike Bonfil, does not meet the American Dental Association Specification No. 12 for colour stability. Notwithstanding the greater hardness, strength, resistance to abrasion and the lower coefficient of thermal expansion of Addent, it is debatable whether this material would make a clinically superior restoration.

Phillips⁴ also enumerates the commonly known inadequacies of silicate cement. New formulations have been introduced in the past two years with accompanying claims for a noticeable difference in clinical behaviour which are not borne out in actual practice. Instead, there is continuing evidence that the success of the silicate restoration is more dependent on the powder-liquid ratio and manipulation than the particular brand used.

Holtzendorff⁵ described a technique for precision proportioning and mechanically mixing silicate cement. A torsion bar balance for the powder and a precision microlitre syringe for measuring the liquid are used. Powder and liquid are loaded into an 00 gelatin capsule which fits the Wig-1-Bug amalgamator. The capsule is triturated for 10 seconds. The advantages claimed are improved physical properties, no waste of powder and liquid, fast mix and no spatula slab to chill or clean.

The current interest in amalgam centres around the new spherical alloys. Problems with condensation have been overcome by further modification of shape and size of alloy particles. Improved physical characteristics apparently are gained and this material is particularly adapted to the lower alloy and mercury relationships.

Marginal breakdown and surface corrosion seem to be inherent weaknesses in silver amalgam restorations. Phillips⁴ suspects that possible deflection of the restoration under load may initiate a slit between the cavity wall and the filling, permitting debris to enter this crevice and accelerate marginal breakdown. He suggests that marginal deflection can be minimized by parallel-walled cavity preparations, maximum adaptation of amalgam to the preparation during condensation, and a minimum of residual mercury content.

Eames et al⁶ examined the thermal response of amalgam to polishing instruments. They described the temperature increases produced with various polishing methods and the corresponding effect upon the restoration and/or the pulp. A Burlew wheel, for example, used at 3 lb. pressure for five seconds produced a temperature of 300°F. at the axial or pulpal side of the amalgam restoration. Small sandpaper discs and wet brushes used intermittently were considered safe.

Kaufman et al⁷ investigated the retention, solubility and pH of various ratios of powder and liquid in zinc phosphate cement. Test cemented crowns had the greatest retention with the ratio of 3.2 Gm. powder to 1.65 ml. of liquid which is a fairly thin mix. (Almost 5 Gm. of powder to 1.65 ml. of liquid is the ratio most

often suggested in manufacturers' instructions.) Percentage disintegration was less than 0.3 per cent which is acceptable. Eugenol added to any powder liquid ratio raised the solubility above accepted levels. These findings are significant because a thin mix facilitates the seating of crowns and inlays.

Phillips⁴ found all cements were effective as bases provided they were thicker than 0.2 mm. Zinc phosphate cement is ultimately the strongest base but zinc oxide-eugenol cements are twice as strong five to six minutes after insertion. Minimum strength of zinc phosphate has not been determined. However, its greater ultimate strength makes zinc phosphate preferable to the weaker calcium hydroxide and zinc oxide-eugenol cements for use in extensive restorations.

Law et al⁸ advocated a departure from the conventional amalgam technique for restoring Class II cavities in deciduous molars. They recommended maximum conservation of tooth structure, minimum exposure of amalgam to masticatory stresses, and pre-operative use of articulating paper for the detection and elimination of any sharp interfering cusps. The latter measure, they explained, reduces the likelihood of isthmus fracture. These authors also advocated periodic checking of cuspal interference which may result from abrasion and shifting of teeth.

Doyle⁹ states that the main discrepancy between paedodontic and adult dental care lies in the aesthetic results achieved for each in anterior restorations. Aesthetic restoration of deciduous incisors with proximal carious lesions that undermine or involve the incisal corner are possible. Doyle describes a Class IV preparation using a slice with a labial and lingual dovetail. This cavity is restored with a cold-curing resin (Bonfil). The instrumentation is outlined and some hints are provided for the application of rubber dam. This technique was 92.5 per cent successful as evaluated clinically and radiographically in 740 instances over a mean average of 15 months.

Cohen and Massler¹⁰ recently commented on the pulp's response to dental caries in deciduous teeth. They showed that pulpal reactions under carious lesions are very similar in deciduous and

permanent teeth. Reparative dentine is formed. Thus, contrary to a widely held belief, the histological reaction of the pulp is very similar in deciduous and permanent teeth.

Diamond et al¹¹ determined the amount of reparative dentine formed following various methods of cutting teeth. It is generally agreed that limited amounts of reparative dentine are beneficial provided extended and burn lesions which can lead to intrapulpal abscess formation can be controlled. Of the operative techniques evaluated, a No. 37 diamond bur rotating at low speed and a No. 35 carbide bur used dry at high speed produced the greatest amount of reparative dentine. However, these burs provoked burn lesions. The Densco Air Turbex unit, operating at 300,000 rpm with air and water spray, produced maximum reparative dentine without burn lesions. Diamond et al also made observations on the use or non-use of water coolants in operative procedures.

Hassan et al¹² reported that mechanical pulp exposures can be performed in laboratory animals without any visible bleeding. Clear dental pulp fluid exudes when the relatively avascular odontoblast layer is reached. This contrasts to what happens upon penetration of the deeper and more vascular layers of the pulp. Hassan's work substantiates the fact that pulp exposures are not always visible; hence all deep pulpal walls should be treated as though an exposure were present.

There has been much research relating to retention, cementation and stress analysis of dental castings. Most reports indicate there should be some provision for the escape of cement when full or partial crowns and extensive onlays are cemented. This can be done with vent holes or by electrochemical stripping. Two problems may occur if these steps are not taken. One is the lack of complete seating which, as reported by Bassett,¹³ may result in a 1 mm. discrepancy at the gingival margin. The other problem is brought about by hydraulic pressure filtration which may leave virtually pure phosphoric acid in the areas of greatest pressure. Courtade¹⁴ and Bassett¹⁵ give techniques for simple closure of

the vent holes.

In a study carried out at Ann Arbor, Lorey et al¹⁶ reported retentive variations associated with the size, depth and character of pins used in dental castings. Threaded pins proved more retentive than smooth pins. Retention was also augmented by a combination of increased pin diameter and length, probably due to the increased surface area produced.

Craig et al¹⁷ described the results of stress analysis in full crown restorations using photoelectric analysis. Maximum compressive stresses were found on the tips of reduced cusps and maximum tensile stresses at the fossae and along the axis of symmetry of the crown. Tensile stresses were observed at the cervical margins of the restoration. These authors arrived at two conclusions: (1) compressive stress is reduced near the pulpal surface of MOD restorations when the load is applied either mesially or distally to it, and (2) the MOD box preparation with rounded axiopulpal line angles has lower stress concentration in comparable areas than the shoulderless slice preparation.

Two articles on drugs used in restorative dentistry are of interest. Rotberg and De Shazer¹⁸ commented on the histological and chemical effect of eugenol on sound dentine. Both eugenol and zinc oxide-eugenol mixtures progressively remove calcium from dentine. This occurs very rapidly during the first 10 weeks after placement. The softening of sound dentine beneath clinically applied zinc oxide-eugenol mixtures is thought to be the result of a complexing action of eugenol with calcium. Schwartz¹⁹ investigated the effectiveness of prednisolone for relieving postoperative hypersensitivity. Three solutions were tested: (1) a combination of 1 per cent prednisolone with 99 per cent chloromonophenol, (2) 1 per cent prednisolone alone, and (3) chloromonophenol alone. Subjective and objective response to thermal stimulation and general postoperative discomfort were recorded. One per cent prednisolone alone was very slightly (but not significantly) more effective than chloromonophenol alone. A synergistic effect of the two components was not observed.

SUMMARY

This article summarizes the most recent information about popular dental restorative materials; aesthetic restorations for deciduous incisors; pulp reactions following operative procedures; retention, cementation and stress characteristics of dental castings; the action of eugenol on sound dentine; and the effectiveness of prednisolone in relieving postoperative discomfort.

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Penetration around the margins of restorations:

1. Review and experiments

Leakage around the margins of dental restorations results from the interaction of several contributing factors including the performance of the operator, behaviour of the fluid penetrant, pressure differences between the external surface and the internal face of dentine, as well as the restorative material used. The authors show that repeated restorations of the same material do not behave in a uniform fashion.

Des fuites à la périphérie des restaurations dentaires proviennent de l'interaction des différents facteurs qui y contribuent, y compris le travail de l'opérateur, l'action du liquide pénétrant, les différences de pression entre la surface externe et la surface interne de la dentine ainsi que les matériaux de restauration utilisés. Les auteurs prouvent que des restaurations répétées avec le même matériau ne se conduisent pas toujours de la même façon.

Various laboratory methods have been used to assess penetration around dental restorations made of traditional dental materials. Air pressure,^{1,2} dyes,³⁻⁶ radioactive isotopes,⁷⁻²¹ inert materials,²²⁻²⁶ and bacteria²⁷⁻³⁰ have been employed. The impression gained from a survey would be that acrylic resin restorations leak almost immediately, that silicate cement restorations seal cavities for longer than acrylic resin, and that a seal is eventually formed around silver amalgam. Hard linings have no known effect, but resinous varnishes seem to decrease leakage around silicate and amalgam restorations.

On the other hand, clinicians, operating on natural teeth with restorations that have been in place for five or more years or on teeth with restorations that are undermined by secondary caries, often observe a dry powder spraying over the

mirror and rubber dam as the bur enters zinc phosphate or calcium hydroxide cement linings beneath amalgam and silicate cement restorations. This fine white dust suggests that fluids have not penetrated in the manner that aforementioned studies¹⁻³⁰ would suggest.

The purpose of the following experiments was to seek some explanation for the failure of laboratory research to reflect common clinical conditions. We also wanted to determine how new composites might prevent 'amalgam after-pain' and secondary caries—phenomena customarily attributed to persistent leakage around restorations. Three sets of experiments are described in this article. Their clinical implications will be discussed in a later publication.

This work was done partly at the Eastman Dental Center, Rochester, and at the University of British Columbia from 1960

TABLE 1 Summary of results: restorations exposed to dyes for different times (first series).

Series	No.	Material	No. of teeth	Dye	Time	Results
P9TS	1	Silicate	10	b.f.	7 hrs.	4/10 pulp penetration av. depth 1.4 mm., spread 1.1 mm.
	2	Silicate	11	b.f.	16 hrs.	10/11 pulp penetration av. depth 1.6 mm., spread 1.2 mm.
	3	Silicate	10	b.f.	24 hrs.	8/10 pulp penetration av. depth 1.8 mm., spread 1.5 mm.
P9TA	1	Acrylic	10	b.f.	1 hr.	10/10 pulp penetration, spread 1.8–2.0 mm.
	2	Acrylic	10	b.f.	3 hrs.	10/10 pulp penetration, 9/10 dentine saturated
	3	Acrylic	10	b.f.	7 hrs.	10/10 pulp penetration, 10/10 dentine saturated
	4	Acrylic	10	b.f.	24 hrs.	10/10 dentine almost entirely stained
P9DA		Acrylic	10	b.f.	16 hrs.	10/10 pulp penetration
P9HA human teeth	1	Acrylic	9	b.f.	16 hrs.	9/9 pulp penetration, little lateral diffusion
	2	Acrylic	9	b.f.	24 hrs.	9/9 pulp penetration, little lateral diffusion
P9DA	1	Acrylic	5	m.v.	16 hrs.	5/5 pulp penetration, little lateral diffusion
	2	Acrylic	5	chr.	16 hrs.	3/5 all dentine stained
	3	Acrylic	5	m.v.p.	16 hrs.	5/5 all dentine stained
	4	Acrylic	5	chr.p.	16 hrs.	5/5 all dentine stained
	5	Acrylic	5	b.f.p.	16 hrs.	5/5 all dentine stained
P9AU		Acrylic: undercut cavities	5		7 hrs.	5/5 dentine more stained laterally than in P9TA-3
P9AE		Acrylic: experimental liners	20	b.f.	7 hrs.	20/20 pulp penetration
P9SZ	1	Silicate: thin Z.P. liner	5	b.f.	7 hrs.	5/5 pulp penetration, lining 0.5 mm. thick
	2	Silicate: thick Z.P. liner	5	b.f.	7 hrs.	5/5 pulp penetration, lining 1 mm. thick
7SAC		Amalgam with cavity varnish	5	b.f.	24 hrs.	2/5 pulp penetration 26 weeks later

b.f. = basic fuchsin.

m.v. = methyl violet.

chr. = chromotrope 2R.

b.f.p. = basic fuchsin in propylene glycol.

m.v.p. = methyl violet in propylene glycol.

to 1965. A preliminary report has been made. Reference to the present article also occurs in an earlier publication by Roydhouse.³¹

MATERIALS AND METHODS

Bovine teeth, freshly extracted from four to six year old animals, were stored in normal saline which had been saturated with calcium phosphate and contained benzalkonium chloride (Zephiran) (1:10,000) to suppress the growth of mi-

cro-organisms. Prior to storage, each tooth was cleaned with pumice on a dental lathe and the pulp was removed from the tooth using a broach. When human teeth were used, they were obtained immediately after extraction and kept under similar conditions. None of the bovine teeth or human teeth used in these experiments were stored in formaldehyde solutions.

The teeth were kept constantly moist. During cavity preparation the teeth were sprayed with water as is usual when using high-speed handpieces. The teeth



FIGURE 1 Massive leakage seen in a cross-section around an acrylic resin restoration exposed to methyl violet dye solution. No pulp is present in this bovine tooth. See Table 1.

were at a temperature of approximately 37°C when the cavities were filled. The cavities were dried before filling with short blasts of air or with cotton pellets.

First Series. — One operator cut and restored cavities in bovine teeth. Class V cavities were prepared on the buccal surfaces with an S.S. White No. 39 carbide bur and finished with an S.S. White No. 31 dental abrasive point at 20,000 rpm. The mesial and distal sections of this cavity were rounded and the walls of the middle section were parallel. No undercuts were present. The cavity was from 1½ to 2 mm. deep and about 2 mm. wide. Cavities were dried with a chip blower and restored with a variety of materials. A summary of the materials used is shown in Table 1. Some cavities

were lined with zinc phosphate cement [P9SZ]. The restorative materials used were: S.S. White silicate cement (we rejected a batch of their New Filling Porcelain because the colour was inadequate) over cavity varnish [P9TS]; cold cure acrylic resin (Sevriton restorative material powder AZFAH, liquid A4, AK) [P9TA, P9DA, P9HA, P9AU, P9AE]; and amalgam [7SAC]. After 24 hours the restorations were trimmed flush with the tooth surface using a coarse cuttle sandpaper disc. All the teeth with restorations in this series were subjected to water at 60 to 70° C for one minute, and then placed in water at 4° C for a further minute. This form of thermal degradation was carried out 50 times for all teeth except those containing amalgam restorations. The latter were thought to be better sealed and therefore required more thermal 'stress.' These teeth were accordingly given 100 thermal cycles. The restored teeth were then coated with vinyl copolymer varnish (Union Carbide Vinyl NYGL 35 per cent in acetone). The entire tooth, except the restoration and the region within 2 to 5 mm. of the restoration-tooth junction, was coated to prevent dye or similar materials from passing into the dentine exposed beneath the enamel crown or passing into the cementum of the root.

These varnished teeth were placed in a saturated solution of basic fuchsin, methyl violet or chromotrope 2R. In one set [P9DA], reagent grade propylene glycol was used as the solvent for the dyes.

After varying times the teeth were cut into three to four longitudinal sections, each passing through some part of the restoration. These sections were examined under a binocular microscope (Figure 1). The various materials, times, dyes and numbers of teeth, with the results, are summarized in Table 1.

Second Series. — Another operator attempted to reproduce series 1. Some 30 teeth were treated in the same fashion as the set labelled P9TS. We soon discovered that the second operator's results for acrylic resin differed from those previously described. Likewise, no simple pattern was seen for amalgam. Observa-

tion showed that some difference between operators was present.

We therefore devised a statistical design for the second series that would isolate the effects of the different operators. Materials chosen for use were silicate cement and silver amalgam. Acrylic resin could not be used because the rapid massive leakage which occurred tended to obscure fine differences. The time required to cut and restore five teeth introduced a further variable (daily variation). Restorations of silicate cement and amalgam, each in 10 teeth, were therefore completed by each of three operators on two separate days. Half of each operator's work (20 teeth) was subjected to hot and cold cycling (50 cycles) and the other half was kept at 65° C in normal saline for 24 hours.

In another experiment two operators, using silicate cement and amalgam, restored 80 teeth and all teeth were put through 50 hot and cold cycles. Then 60 of these teeth were placed in a tooth paste slurry for 48 hours at 37° C, and 20 were kept in normal saline at 37° C for the same period. This experiment tested whether the detergents in the tooth paste would aid the penetration of dyes.

All restorations in teeth in the second series were coated as in the previous series and were exposed to a saturated solution of basic fuchsin in water for 24 hours. Each tooth was cut into three or four sections longitudinally. The sections, as well as the internal or pulpal wall of the dentine, were examined in the binocular microscope.

In each sub-group of five (one operator, one material and one of the thermal stress treatments) the number of failures was noted. A failure was defined as penetration of dye to the pulp chamber. Each tooth was examined by both operators. The statistical analysis was based on a modified analysis of variance. The number of failures in each category was listed and formed the generating data for the analysis. The variance in each category was tested against an estimate for the unassigned or residual variance which was calculated from $\bar{p}(1-\bar{p})$ where $\bar{p}$ is the proportion of failures. This modification of the analysis of variance is closely related to the chi-square test. Thus, the significances of the sources of variation could be measured, and the analysis is shown in Tables 2 and 3.

Third Series. — Bovine teeth were extracted immediately after the animal had been slaughtered, and Class V cavities were prepared and restored with acrylic resin. No attempt was made to remove the pulp. The tooth surfaces and enamel up to 2 to 5 mm. of the restoration-tooth junction were coated with the vinyl varnish. Human teeth with restorations of various kinds and with various histories were placed in dye immediately after extraction, again with only the margins exposed to the dye. These teeth were subjected to conditions as shown in Table 4.

Assemblies were prepared as illustrated in Figures 2 and 3. Labial portions of bovine teeth were embedded in Ad-dent adhesive base polymer (3M Com-

TABLE 2 Analysis of variance: three operators using two materials restore teeth at two different times.

Source of variation	Degrees of freedom	Mean square deviation (m.s.)	F. ratio m.s./ $\bar{p}(1-\bar{p})$
Main effects			
Operators	2	0.25	1.1
Materials	1	1.01	4.4*
Daily variation	1	3.15	13.5†
Interactions			
Operators x materials	2	1.07	4.66*
Operators x daily variation	2	0.40	1.74*
Residual $\bar{p}(1-\bar{p})$	111	0.23	

* 5% significance.
† 1% significance.

TABLE 3 Analysis of variance: two operators restore teeth using two materials.

Source of variation	Degrees of freedom	Mean square deviation (m.s.)	F. ratio $m.s./\bar{p}(1-\bar{p})$
Main effects			
Operators	1	1.72	6.88*
Materials	1	2.63	10.52†
Interactions			
Operators x materials	1	1.70	6.80*
Residual $\bar{p}(1-\bar{p})$	76	0.25	

* 5% significance.
† 1% significance.

TABLE 4 Penetration assemblies: labial sections of teeth embedded in adhesive polymer; restorations therein exposed to dyes and pseudo-pulp chambers filled with various fluids.

Restorative material	External fluid	Internal chamber	Time	Results
Acrylic resin	b.f.	nil	24 hrs.	4/4 pulp penetration
	m.v.	nil	24 hrs.	6/6 pulp penetration
	m.v.g.	nil	24 hrs.	4/5 pulp penetration
			24 hrs.	5/5 pulp penetration
			48 hrs.	4/5 pulp penetration
			24 hrs.	5/6 pulp penetration
	m.v.	water	24 hrs.	3/6 leaked to dentine-enamel junction
	m.v.g.	water	24 hrs.	6/6 no leakage
	m.v.	bl.m.v.g.	24 hrs.	3/6 no leakage, 3/6 technique failures
	b.f.	sealed	24 hrs.	2/2 enamel penetration only
	m.v.g.	sealed	24-72 hrs.	4/4 no leakage
	m.v.g.	natural pulp	3 days	3/3 no leakage
	chr.	natural pulp	3 days	3/3 no leakage
Silicate	b.f.	nil	24 hrs.	6/6 pulp penetration
	m.v.g.	bl.m.v.g.	24 hrs.	4/4 penetration of enamel only
	m.v.g.	nil	24 hrs.	4/4 pulp penetration
	m.v.g.	sealed	24 hrs.	2/2 no leakage
	m.v.g.	natural pulp	24 hrs.	6/6 penetration of enamel only
Amalgam	b.f.	nil	24 hrs.	2/6 pulp penetration 4/6 penetration to dentine only
Composite base polymer	m.v.g.	nil	24 hrs.	6/6 no leakage
Composite restorative	m.v.g.	nil	24 hrs.	6/6 no leakage

b.f. = basic fuchsin in water.
m.v. = methyl violet in water.
m.v.g. = methyl violet with glycerin.
bl.m.v.g. = bleached m.v.g. in water.
chr. = chromotrope 2R in water.
sealed = base polymer on pulp walls.

pany). A flat surface was cut with water-based carborundum paper on the labial aspect of the tooth and the whole block was placed on a special platform in a Dumore Hi-speed precision drill press. A cavity was cut to a depth of 0.050 inches under water with the bur travelling at 17,000 rpm. The cavity was finished with a Starlite No. 26 cylindrical diamond bur to a depth of 0.060 inches. The bur and tooth were mechanically manipulated at all times and were not subjected to operator variations during cavity preparations. All but 1 to 2 mm. around the margin of this cavity on the lateral surface was covered with adhesive polymer. This block was then reversed on the platform and a well was cut into

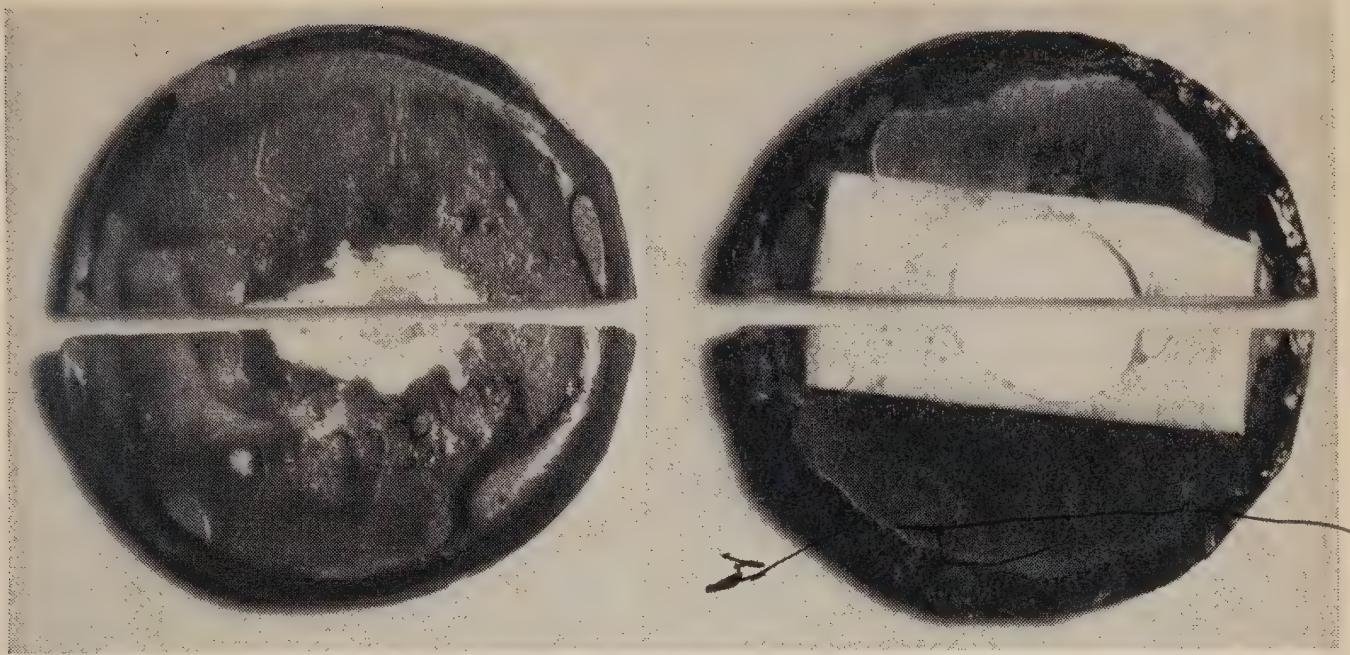


FIGURE 2 The 'buccal' (left) and 'pulpal' (right) aspects of the test assemblies cut longitudinally. The dark surrounding material is the adhesive polymer. On the left, the small restoration can be seen in the centre of the exposed enamel. On the right, the pulpal view shows the pseudo-pulp chamber cut in dentine.

the polymer and dentine surrounding the pulp chamber with a Densco 5JT diamond wheel. The thickness of dentine left between the cavity floor and the pseudo-pulp chamber was measured.

One operator filled these cavities with either cold cure acrylic resin, silver amalgam, silicate cement, Addent composite base polymer, or the experimental composite restorative precursor to Addent 12. The pseudo-pulp chamber was filled with various solutions or left empty and the slab was sealed onto glass slides or further prepared slabs of adhesive polymer.

The following dye solutions were used both external to the tooth and within the pulp chamber: (1) basic fuchsin 0.5 per cent in water, (2) methyl violet 0.5 per cent in water, (3) methyl violet 0.2 per cent with 11 per cent glycerin in water,²⁶ and (4) methyl violet and glycerin in water, but with the dye bleached by a commercial bleaching agent.

After varying periods the slabs were sectioned and examined under a binocular microscope. A summary of the materials and conditions is shown in Table 4 with the results. These data were intended for statistical analysis, but the

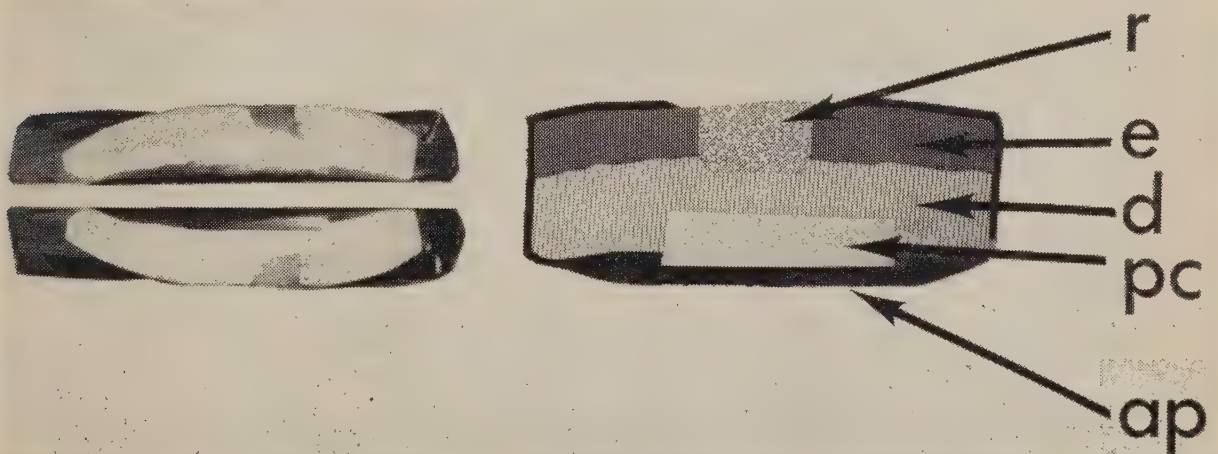


FIGURE 3 The assembly has been cut through and folded so that both cross-sections are visible. Leakage has occurred. A diagram shows the design of the assembly where r is the restoration, e and d are enamel and dentine respectively. The pseudo-pulp chamber is indicated by pc, and the adhesive polymer by ap.

main conclusion can be drawn by observation alone. The observations were related to morphology and thus could not be subjected to statistical analysis.

RESULTS

First Series

1. With few exceptions, dye penetrates around silicate cement to the pulp chamber in less than 16 hours [P9TS].

2. Under laboratory conditions, dyes penetrate rapidly around acrylic restorations. The dye can be found in the pulp chambers in less than one hour [P9TAi].

3. Penetration to the dentine-enamel junction is accompanied by lateral spread of the dye along this junction [P9TS]. Dentinal tubules not involved in the cavity preparation may therefore contain dye.

4. Human teeth are similar to bovine teeth in these laboratory experiments, except that lateral diffusion of the dye through dentine is limited [P9HA].

5. Differences between dyes and solvents are detectable. With methyl violet, lateral spread of the dye on dentine is less than when basic fuchsin is used. If glycol is employed as a solvent, or when chromotrope 2R in water is used, lateral diffusion in dentine is very rapid and extensive [P9DA].

6. Zinc phosphate cement linings seem to increase leakage or, at the very least, do not decrease penetration [P9SZ].

7. Variation of experimental varnish-like materials had no observable effects as cavity lining agents [P9AE]. Materials used were Myvaset 500 (DPI Limited), UMCH (Union Carbide), Versamid 930 (General Mills), and Zein (Corn Products).

8. The amalgam set [7SAC] was insufficient in number to yield any valid conclusions.

These results resemble those previously reported in the literature. We tried to duplicate the results in order to establish our experiment as a valid test method. We thought it would be possible to show that acrylic restorations can seal cavities for one to eight hours, that silicate cement can seal for 16 to 24 hours, and that

amalgam can seal for two to three days. We thought that thermal degradation would diminish these sealing qualities by causing deterioration of the margins through irregular expansion and contraction of the restorative material.

Second Series. — The statistical approach was favoured²⁵ because certain variations in techniques and in teeth themselves existed. The following is an interpretation of Tables 2 and 3.

1. The presence of significant interactions in both tables indicates that sources of variation under 'main effects' can be considered as secondary to 'interactions.' There is statistical reasoning which calls for cautious interpretation of main effects in the presence of significant interactions.

2. In Table 2 the variation, 'operators,' appears in both interactions but does not appear as a main effect. On the other hand, both 'materials' and the 'daily variation' appear in the interactions and as main effects. However, 'materials' and 'daily variation' taken as an interaction were not significant. Thus, the interpretation of the interactions is that the leakage pattern will depend upon the operator, but this in turn will depend upon the day on which the restoration was placed, and secondly, upon the material used. The conclusion that success in sealing depends on operator and materials taken together is also seen in Table 3.

3. The hot-cold cycling and immersion in tooth paste detergents had no observable effects. No significance was found in the analysis on the basis of the conditions of treatment after insertion.

4. In summary, some difference exists between the sealing qualities of silicate cement and amalgam. This difference depends upon the operator.

The leakage pattern in teeth is evidently influenced by the material used. This was demonstrated in the first series of experiments. But the operator may have a marked effect upon the leakage pattern. This 'operator' effect is dependent upon the materials used. In short, some operators were more successful with one material than with another; but of the three operators, not all were more

successful with silver amalgam than with silicate cement. Detailed examination of the results shows that one operator enjoyed success with silicate cements in the prevention of penetration, whereas another was unable to place leak-proof silicate restorations but was successful in sealing when he used amalgam. The third operator, on the other hand, had indifferent success with either material. These findings are in accord with clinical experience in that some operators get better results with some materials than with others.

The results also show that teeth restored on the second day were generally more prone to leakage than those restored on the first day. Moreover, the proportion of failures rose in the second set where two operators restored the teeth. In other words, the sealing qualities of all the materials diminished with the passage of time. In order to explain this observation, we examined the system used for placing these restorations. A common denominator was the use of one particular bottle of cavity varnish. All restorations were placed upon cavity varnish. The progressive decline in sealing qualities can be explained by increased viscosity of the content in this particular bottle as the varnish solvent evaporated from the bottle. Users of commercial paints and varnishes apply their material in several thin layers rather than one thick layer because each coat or layer covers the pinholes that occur in the previously applied coat. When the cavity varnish is applied, the solvent evaporates and there is a tangential tension in the film which is relieved by the development of small pinholes. The number and size of the pinholes is related to the viscosity of the varnish coat, the proportion of solvent therein and the tensile strength of the film. Therefore, as cavity varnish thickens, its sealing qualities may diminish if a thick coat with many pinholes is produced.

Variations associated with operators and materials must be attributed to differences in style. The experience of the operators varied and they were trained on three different continents. The only observable effect of thermal stressing, which was not clearly shown statistically,

is that thermal variation seems to increase rather than decrease the differences between the operators and their effects upon materials.

The main conclusion from this set of experiments is that leakage patterns depend in some respects upon the operators. The literature reveals considerable divergence in results but gives very little information about the conditions of placement of restorations. In many of the papers which we reviewed it is not clear whether one or more operators were used to place the restorations tested in the laboratory. Our first series indicated that the speed and extent of leakage seem to depend upon the dye or solvent used. Moreover, Bodecker and Lefkowitz²² have described a difference in the penetration of dyes around restorations placed in vital and non-vital teeth. The experiments we undertook were performed on non-vital teeth. Once again, a review of the considerable number of experiments on penetration failed to reveal what the investigators had done to the contents of the pulp chamber. In most cases, freshly extracted teeth were used and it was assumed that a decaying mortifying pulp had no effect upon leakage. This then led us to a third series of experiments where we attempted to decrease the effects of the operators and to observe what effects the pulp chamber and its contents had upon the patterns of leakage.

Third Series. — The restorations were pushed out with a sharp dental chisel and the walls of the cavity examined. During this examination the morphological nature of penetration of dyes around restorations became clear. This will be discussed in a later article. The data in Table 4 produced the following conclusions. Whenever the internal chamber contained moist air or water, there was leakage or dye penetration to the pulp chamber (internal chamber — nil or water). Whenever the internal chamber contained bleached methyl violet, the methyl violet dye passed into the cracks in the enamel or channels in the enamel or passed between the enamel and the restoration but did not penetrate into the dentine (Figure 4). Either the penetration was decreased or, alternatively, the

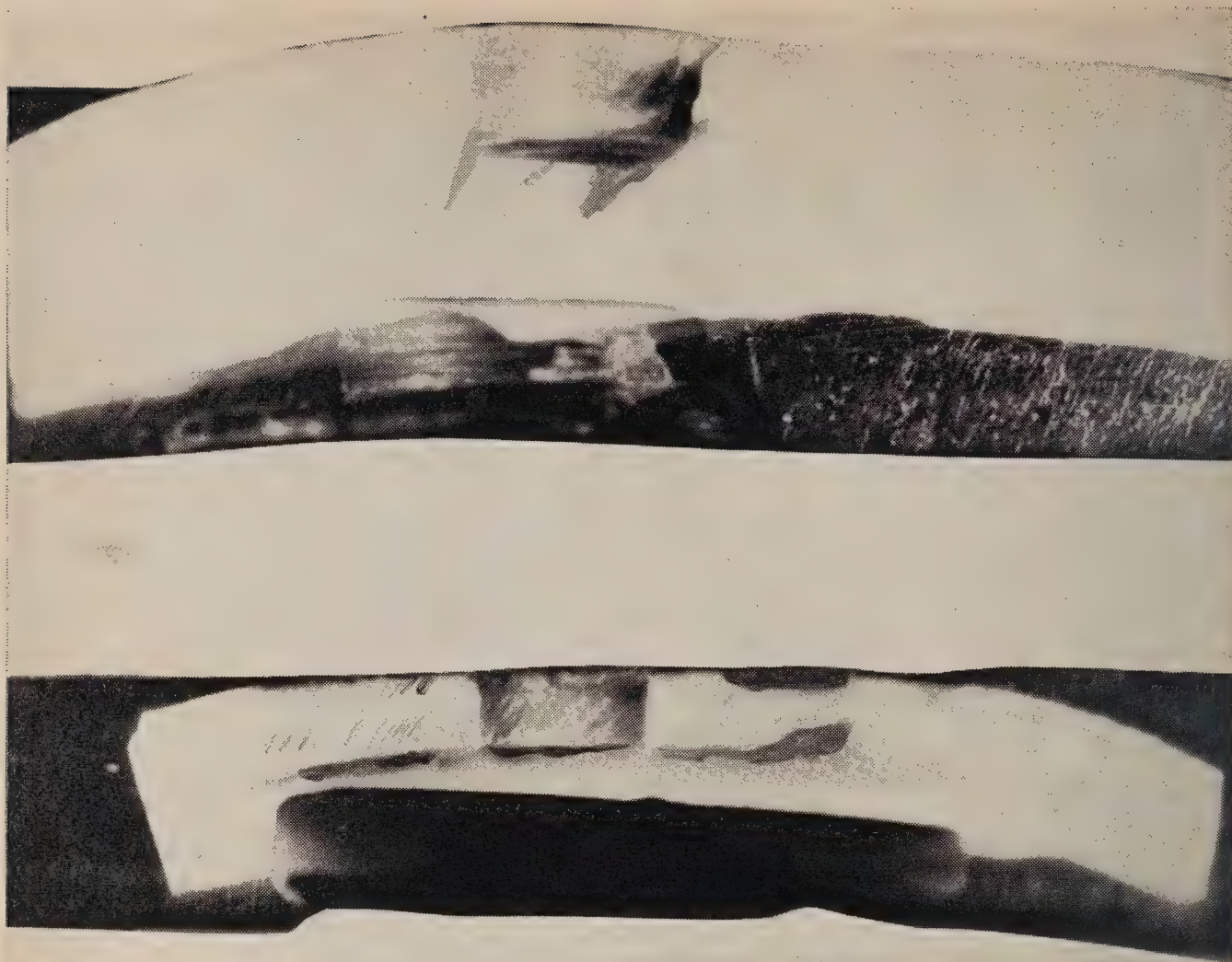


FIGURE 4 The assemblies are shown with the restorations removed. Above is a section in which the restoration leaked and the stain involved the dentine. The lower section shows that the dye has diffused not only in the cavity but also through lamellae or cracks in the enamel. (The photographs have been retouched to show the location of the stain.)

solution from the internal pulp chamber could have passed outward through the dentine to the enamel.

No penetration of dye to the pulp chamber occurred when the dentinal tubules were sealed at either end with composite base polymer or the composite restorative material, or if the sealing was due to the presence of natural pulps. Similar results are reported by Muñiz and de Muñiz.³² Whenever pulps were left in the teeth, dye penetrated only into the enamel (internal chamber—natural pulp). This was true whether bovine or human teeth were used, and whether the restorations had been present in the mouth or had been placed in the teeth after the teeth had been extracted. The thicker fluid, that is methyl violet with glycerin, did not vary greatly in its effects from the solution of methyl violet in water. No dyes penetrated between the adhesive base polymer and tooth tissue (all the experiments described in the third series

depended upon the continued adhesion or sealing of the base polymer against enamel and dentine because the assemblies were made of the base polymer). Similarly, no dyes penetrated between the composite restorative material and dentine. Some dye penetration was observed in the outer quarter of enamel immediately adjacent to the composite restoration. Recent reports^{33,34} about Addent 35 (3M Company), based on the experimental composites using isotopes and teeth with pulps of uncertain status *in vitro*, give conflicting results. This is presumably due, as this paper shows, to differences in techniques and operators. The depth of dentine left seems unrelated to the degree of penetration.

The general conclusion is that leakage of the restorative materials in these laboratory tests depends upon pressure differences—either osmotic, vapour or gaseous—between the external surface and the pulp chamber.

CONCLUSIONS

Leakage or penetration around restorations is a series of phenomena and not a single entity. The same phenomenon has not been viewed in all published reports. This may account for conflicting results reported in the literature.

Laboratory tests of leakage are influenced by the participating operators, the nature of the tracers used to demonstrate the leakage, and the nature of the sections examined. Moreover, the behaviour of the fluid penetrant depends upon the pressure differences between the external surface and the internal face of dentine.

Leakage is also influenced to a degree by the materials used to restore the cavities, but test results related to restorative materials alone are either obscure or of limited clinical significance. Restorations of a given material do not behave clinically in a uniform fashion.

Leakage, as will be shown in a subsequent publication, is determined by the morphology of the cavity and teeth and is strongly influenced by intra-oral conditions not represented in experiments on leakage of restorations.

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Dentistry of yesterday

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The Journal is privileged to reproduce the following paper which Dr. Gullett delivered May 16, 1967 at the second luncheon of the Canadian and Ontario Dental Association centennial convention, Toronto.

The purpose of these remarks is to outline the beginnings of Canadian dentistry and delineate how the dental profession developed in Canada.

If, for a moment, we think in terms of dentistry and not dentists as we know ourselves, then we must go back to the French Regime which ended during the last half of the 1700's. During that period health practitioners came to this country from France. In European countries guilds of barber-surgeons formed during the thirteenth century as a result of a papal edict that all beards must be shaved. It is said that Ambrose Paré, the father of surgery, shaved and cut hair in order to make a living practising surgery. Eventually, the surgeons separated from the barbers and formed a company of their own. The barbers retained the insignia of the red and white striped pole representing the blood and bandages.

In the Quebec Public Archives reposes a copy of the first directory published in Canada. The year is 1791 and this directory contains a list of the health practitioners in Quebec City and Montreal. The list indicates that these men were barber-surgeons. It suggests that the age of specialization had already set in, the list being divided into physicians, accoucheurs, apothecaries, surgeons and 'saigneurs et arracheurs de dents' (bloodletters and toothdrawers). The largest of

these groups are the bloodletters and toothdrawers.

Strong influence on dentistry also came to the United States from France but with a very significant difference. A few men came to the United States from England during the colonial period; but during the American Revolution, when rapport between France and America was high, a sizable number of French dentists came to the United States. These men were disciples of Pierre Fauchard who is justly acclaimed the Father of Dentistry, and who coined the title, 'chirurgien-dentiste.' The influence of these dentists from France on the development of dentistry was great. As dentistry came to Canada from the United States, this fact is of importance in the genealogy of the Canadian dentist.

In a comparatively short time native-born American dentists, who had served an apprenticeship of varying lengths with the dentists from Europe, appeared in Canada. Man-made boundary lines meant little in the early 1800's as the trade routes ran north and south. The first and most important trade route for many years to come was from Montreal, via Lake Champlain and the Hudson River, to New York. It was by this route that dentistry as we know it first came to Canada. Early in the nineteenth century itinerant dentists were coming up this trade route and paying short visits to Montreal, Quebec City and York, afterwards called Toronto. For the most part these men were good dentists for their time. They carried elaborate chests of hand instruments, many designed by themselves, which are of amazing ingenuity when examined today. Eleazer Gidney stands out during this period; at least, the best record of him exists. He fluctuated be-

tween New York, Toronto, Quebec City, Manchester and London in England, and Paris. Considering that travel time took seven days from Toronto to Quebec and anything around two months for crossing the Atlantic, his career appears fantastic. Nevertheless, he became the richest dentist of the age. He built a mansion outside New York on the Hudson River which stands today and is owned and occupied by a Roman Catholic order.

Eventually, some of these itinerant dentists settled and became resident practitioners. Young men would become apprenticed to these dentists for three months to seldom more than a year. Thus, the Canadian dentist was born. The historian tells us that in the second decade of the last century the population of Upper Canada, now Ontario, was approximately 94,000 and 80 per cent of American origin. The earliest continuing resident dentist we have been able to trace in this region is a man named Samuel Wood whose name appeared continuously in Toronto newspapers from 1832 to 1856. With a population of 20,000 in 1846, Toronto had four dentists and much was said about the over-supply of dentists.

We must not spend too much time on this early period but there is one other important point. As time went on resident dentists established in the larger towns. One of the first was G. V. N. Relyea from Albany, New York, who settled at Belleville, Ontario, in 1844 and continued practice there for 30 years. In later years he said of himself that he came to Canada with a book of gold foil, a book of tin foil, a few artificial teeth, a hundred dollars and a lot of cheek. The practice he established has been carried on through three generations of the Marshall family and constitutes the oldest continuing dental practice in the whole country. By 1851 Kingston, London, Belleville, Cobourg, Brantford and St. Catharines, in addition to Toronto, each had a dentist. Hamilton had three. Ottawa (or Bytown as it was known), with a population of 8,000, was then a "rough, boisterous, lumber town," and had no dentist. These men did not have an easy time trying to make a living practising dentistry and out of necessity most of them had sidelines. A Brantford dentist named Brown advertised himself

as a mechanical dentist, a surgical dentist and a "Daguerrean" artist. A Hamilton dentist, George S. Smith, advertised as a dentist and an ambrotypist. As towns of any size obtained resident dentists, a new type developed known eventually as 'tramp dentists.' These men took to the rural areas, generally on foot with a pack on their backs containing their total equipment. They flourished with the introduction of vulcanite at the end of the 1850's. They had one remedy for every dental malady — "extract all and insert plates."

By the early 1860's the established resident dentist who was trying to serve the public in a legitimate manner found his position intolerable. Anyone so inclined could practise dentistry without hindrance of any kind. The substitution of vulcanite for metal base plates in dentures, while good in itself, made for great abuses. The introduction of amalgam, replacing gold foil, gave opportunity to the untrained and unskilled. Both these innovations resulted in increased numbers of men going about the country performing crude work for an unsuspecting public. Some had served a short apprenticeship in a dental office; others had no training at all. The men practising dentistry were a mixture of a few very skilful practitioners for their time and a rapidly increasing number possessing little knowledge or ability.

Toward the end of 1866 Barnabus W. Day, a dentist in Kingston, sent out a circular letter to known dentists in Ontario calling a meeting to be held at the Queen's Hotel, Toronto, in January. Only nine men turned up at the meeting. Who were they? Day was born on a farm near Kingston. There is evidence that he was practising dentistry there in 1854. While practising, he attended Queen's Medical School, graduating in 1862, after which he continued to practise dentistry. Curtis Strong Chittenden was born at Burlington, Vermont. He obtained his training in New York State and came to Hamilton in 1849, where he practised for 40 years. In the 1850's he became a member of the Michigan State Dental Association and was president of that association in 1860. As a consequence, he was the only man

who knew something about professional organization. Henry T. Wood came from New York State and practised in the town of Picton. He became known as the gentleman dentist who settled disputes. A more necessary type of man during the following years would be hard to imagine. Joseph Stuart Scott was a medical student who graduated from Victoria Medical School in 1867 and then took up the practice of dentistry. F. G. Callender practised at Cobourg and became known as an outstanding operator. John O'Donnell, who became the first secretary of the Ontario Dental Association, practised in Peterborough. A. D. Lalonde from Brockville, D. A. Bogart from Hamilton, and M. E. Snider from Toronto were also in attendance. We know little about Lalonde and Bogart. It was said later that Snider was newly arrived in Toronto and attended out of curiosity. Obviously the seven other dentists practising in Toronto at that time paid little attention to a letter sent out by a Kingston country dentist.

The purpose of the meeting was to seek ways and means of securing legislation for the control of dentistry. Undoubtedly, through the influence of Chittenden, a decision was reached to form an association first and then seek legislation. A committee was appointed to draft a suitable constitution and bylaws and report at a further meeting to be held in July at Cobourg.

Some 31 dentists attended the Cobourg meeting, indicating increased interest. The main business was the adoption of the report on constitution and bylaws whereby the Ontario Dental Association came into being on July 2, 1867. Day was elected president of the new association. The first decision reached by the newly created organization was to seek legislation for dentistry. A committee was appointed to seek advice and draft a bill for consideration at a meeting to be held in January 1868 at Toronto.

The January meeting was held in St. Lawrence Hall on King Street, the main place for important meetings of that day. In the meantime, Confederation had become a reality and the first session of the Ontario Legislature was in progress at the Parliament Buildings on Front Street. It is evident that a great deal of work had

been done in gaining support for the legislation. A petition addressed to the Legislative Assembly had been circulated. It contained some 99 signatures from 68 dentists, 28 physicians, one judge, the mayor of Toronto, and a druggist. The Medical Council had adopted a strong resolution in support. Two days were taken up with a discussion of the proposed bill. Some dentists opposed it on grounds that the bill was 'quixotic and immature' and, anyway, they did not want the government interfering with their private affairs. As a matter of fact, the opposition came from those who could not qualify under a grandfather clause contained in the bill which granted recognition only to those dentists who had been constantly engaged for a period of five years in established office practice. Among other points, the "established office practice" ruled out the "tramp dentists." Eventually, the meeting adopted the proposed bill and on the third day dentists and other supporters of the bill, numbering approximately 100, marched to the Parliament Buildings where the bill was introduced. Opposition by dentists continued during passage of the bill through the Legislature but, with some amendments, the bill became law on the fourth day of March 1868.

This Dental Act became the first in the world to be adopted. The second dental act was adopted by the State of Ohio two months after the Ontario Act.

The Act created the Royal College of Dental Surgeons of Ontario with a Board of Directors elected by the members of the profession. This Act, with some revision from time to time, has remained in force ever since its adoption. Among the extensive powers granted the Board was that of providing training for dentists. Thus, establishment of a school became the first issue. In the fall of 1869 the Board started a school in two rooms over a cabinet shop at the corner of Church and Court Streets in Toronto. This school operated for four months, graduated two students, and closed owing to a deficit of \$125. Pressure for a school was great, but the Board hesitated after this disastrous initial experience. The Dental Act had fortified the position in making indenture-ship compulsory but, until a definite

training program could be established, conditions of practice could be little improved. The only solution was a school. Endeavour was made to get an Ontario university interested, but this was of no avail.

At the annual meeting of the Ontario Dental Society, held in Hamilton early in 1875, a strong resolution was adopted requesting the RCDS Board to proceed in establishing a dental school. The vital words of this resolution were that funds of the profession, in aid, were to be appropriated. The Board acted almost immediately, appointing J. B. Willmott and Luke Teskey, a medical graduate, to proceed in setting up a school, while carefully defining the financial responsibility of the Board to rent of \$150 per annum and \$250 for furnishings. Willmott and Teskey were delegated authority, but otherwise they were left pretty much on their own.

On this basis the school was established at 46 Church Street. The first session was held 1875-76 with 11 students in attendance. This school, known as the Royal College of Dental Surgeons, was successful. As the number of students increased larger quarters became necessary and new locations were rented. With an ever-increasing number of students rented quarters were, by the 1890's, no longer available or suitable. With the opening of a new building in 1896 on College Street, where the present Toronto General Hospital stands, the dental profession reached one of its finest hours. Within a few years, however, the hospital required the site of the school. Again the profession rose to the occasion, erecting a much larger school at the corner of College and Huron Streets which was opened in 1909. The school remained in that location until 1959 when the present building was opened on Edward Street.

A great deal had been accomplished in building the dental profession but it was done through much travail. Chittenden tells about a social visit with a Hamilton judge who told him: "You dentists have a great reputation for pulling. If you would just start pulling together, you could be the finest group of men in the country." The Ontario Dental Association, or Society as it was known then, had two great achievements to its credit: first,

the obtaining of legislation and second, the support given in the establishment of the school. However, these and other achievements made for divisive factors among dentists. Worst of all, from the standpoint of the Association, following passage of the Dental Act the true leaders of the day devoted all their efforts to the newly created "Royal College of Dental Surgeons of Ontario." As the editor of the *Dominion Dental Journal*, A. E. Webster, said at a much later date, the Association fell into bad hands and, as a matter of fact, the advertising dentists took over control during the 1880's. In 1889 a re-organization meeting was held in London at which time every member was required to sign a strict code of ethics which emphasized the prohibition of advertising. This constituted a turning-point, and from that date forward the Association progressed from strength to strength.

Of all the men during the early period, J. B. Willmott stood out as the leader. For a period of 40 years he was both dean of the School and also secretary of the RCDS Board. Willmott was sincere, upright and conscientious, stubborn in the interests of dentistry, but patient enough to achieve accomplishments. Of course, it must be pointed out that he had to have the support of others; but Willmott himself produced the original ideas. To take an example, the question of a degree became a thorn in the flesh of the profession. A few medical graduates practised dentistry and rightfully used the doctorate degree. Students could also attend a dental school in United States for a shorter course and return with a degree. In Canada, by law, only universities could confer degrees. After years of effort Willmott almost single-handedly achieved affiliation with the University of Toronto for degree purposes. He was at the centre of every effort for improvement of the profession. He died in harness and his name will always be foremost in the history of the development of the dental profession.

And now, on a broad scale, let us look at just a few developments.

During the early days it seems as if the cure for dissension was to change the name of the organization. The original

name adopted was Ontario Dental Association. Subsequently, several changes occurred until the re-organization of 1889 when the name Ontario Dental Society was adopted. This lasted until 1920 when incorporation was secured and reversion to the original name occurred.

Up to the time of incorporation the annual meetings were different in nature from those of today. Presentations were followed by lengthy discussions, all of which were published. Often, more is to be learned by reading the discussions than the original paper itself. Questions on any subject were asked at any stage of the meeting. It was open season on the dean. A paper on the intricacies of root canal filling might be followed by such a question as: "When are you going to begin teaching something about dental practice at the school?" Following incorporation the annual meeting became the convention, setting aside a definite period for the annual business meeting.

The names of former essayists and clinicians can be equated with all that was new in the development of techniques and the progress of dentistry. Throughout the years, it would be difficult to pick out any outstanding man in dentistry on this continent who did not appear on an Ontario Dental Association convention program. One dentist, C. N. Johnson, made more presentations by far than any other man. He was a graduate of the Toronto school; he practised briefly in Collingwood, Ontario, before going to Chicago. The convention has always been of a high calibre, keeping the profession informed.

Without question, the greatest continuing activity of the Association has been in dental public health. To pin-point the initiation of this movement, full credit must be given to John Jennings Adams, a man with a missionary zeal for children's dentistry. He operated in Toronto for more than a quarter century, at his own expense, the first free dental hospital for poor children known anywhere. Adams published the first book on school children's teeth in 1896. On his own, near the turn of the century, he forwarded a well prepared memorandum to the Ontario government on the subject. The Association took up the cause and for sev-

eral years adopted resolutions which were forwarded to the government. By 1909, when the profession concluded that it could not depend upon the government for help, a committee was established for action. First named the 'Education Committee,' later the 'Oral Hygiene Committee,' and finally, the 'Dental Public Health Committee,' this committee has done more in furthering the understanding of dental service for the public than any other single activity. Members of the committee today would be amazed to read of the accomplishments during the 1910-1916 period under the chairmanship of Wallace Seccombe who became the third dean of the Toronto school.

The mention of particular contributors is subject to criticism. However, the name of Harold Keith Box must form an important part of any discussion on the development of the profession. He was a brilliant student who immediately after graduation entered into dental research. Initially, Box was strictly on his own and any financial assistance he received during his lifetime was paltry. Yet, no one would dispute his entitlement to the designation of being the 'Father of Dental Research in Canada.' Box left a legacy to the profession of unmatched quality. It is not surprising that Toronto has had more specialists in his particular field of periodontics than any other city.

There are other intriguing sidelights about Canada's dentists within and without the strict confines of professional activities. A Maritime dentist administered the first anaesthetic for a surgical operation in Canada. A Quebec dentist became lieutenant-governor of his province. An Ontario dentist became the first great entomologist in Canada. The earliest dentist in Manitoba played an important part in the history of the country, being the key figure in saving that area for Canada. A Saskatchewan dentist was the first prominent member of the House of Commons from the profession. An Alberta dentist was one of the first eight men to ever fly an aeroplane. He built it himself and it flew higher and farther than that of the Wright Brothers at Kitty Hawk. He was the first man anywhere to fly a plane with two passengers and the first to set up a corporation for the manufac-

ture of commercial planes. He offered his services to Ottawa at the beginning of World War I, but the authorities saw no need for them. Washington accepted him with open arms and he is largely credited with the production of aerial dreadnoughts as they were called. He practised quietly for over 30 years in Alberta, dying at 80 years of age. Among other notables, British Columbia has had two dentists who have served as cabinet ministers. These scattered facts establish that we are members of no mean profession, both in scientific and civic capacities.

Also, let us not overlook men like Mark G. McElhinney of Ottawa and A. W. Thornton who practised at Chatham, Ontario. Thornton became a staff member of the Toronto school. In 1913 he was appointed dean of the McGill School. McElhinney and Thornton possessed great

literary ability in prose and poetry. They were imbued with patriotism for their country and a love for their profession. In their writings they mixed these two attributes. In 1911 Thornton wrote a poem entitled "Our Heritage." In this Centennial Year of both Canada and our profession it seems fitting to conclude with the last verse of his poem:

"The nation calls, God hear our cry,
And grant us men, to do or die,
No rebel heart, no traitorous hand,
Shall spread sedition in our land;
But honest men, with single aim,
Shall guard our coast, preserve our name;
Shall hear again the Lord's command,
'Let righteousness exalt the land'
Our glorious heritage."

5 Colwick Drive

in appreciation • remerciements

Listed below are the names of the individuals who freely gave of their time to review manuscripts and books for the Journal during 1967. On its own behalf and on that of its authors and readers, the Journal expresses sincere gratitude to these reviewers whose advice was so generously provided.

Nous mentionnons ci-dessous, la liste des personnes qui ont gracieusement consenti à reviser des manuscrits et à analyser des livres pour le Journal, au cours de l'année 1967. Au nom de ses auteurs, de ses lecteurs et en son propre nom, le Journal désire leur exprimer sa reconnaissance et les remercier pour leurs généreux conseils.

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A. E. Swanson

A. H. Thomson
C. D. Torn-ck
Norman Trieger
J. R. Trott
R. L. Twible

D. C. Way
Simon Weinberg
C. H. M. Williams
F. O. Wishart
W. G. Woods

Malcolm Yasny
D. J. Yeo
O. J. Yule

Federal income tax returns by dentists

The Department of National Revenue has issued the following instructions to assist dentists in the preparation of their annual income tax returns.

INCOME

There should be maintained by every member of the dental profession an accurate record of income received from his profession (fees) and from other sources (investments, real estate rentals, etc.). The record should be clear and capable of being rapidly checked against the return filed. Records should be maintained in books kept for the purpose which should be retained until written permission for their disposal is obtained from the Minister of National Revenue.

EXPENSES

Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

(a) Dental and like supplies.

(b) Office help, nurse, bookkeeper, laundry and malpractice insurance premiums:

Amounts of salaries and wages paid should be reported on Form T4, obtainable from your District Income Tax Of-

fice. (The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to income of the payer.)

(c) Telephone expenses incurred in connection with professional practice.

(d) Assistant's fees:

The names and addresses of the assistants to whom fees are paid, and amounts paid, should be furnished on or before the last day of February in each year on Form T4. (Do not confuse with individual return of income, Form T1, to be filed on or before April 30 in each year.)

(e) Rentals paid:

The name and address of the owner (preferably) or agent of the rented premises should be furnished. [See (g).]

(f) Postage and stationery.

(g) Proportional expenses of dentists practising from their residences:

1. Owned by the dentist: Where a dentist practises from a house he owns and as well resides in, a proportionate allowance of house expenses will be given for the laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, and interest on mortgage. (Name and address of mortgagee to be stated.) Note: For depreciation see item 2 (m).

2. Rented by the dentist: The rent will be apportioned if paid by the

dentist; the owner of the premises takes care of all other expenses mentioned in (1) above.

(h) Sundry expenses (not otherwise classified):

The expenses charged to this account should be capable of analysis and supported by records.

Claims for charitable donations will be allowed up to 10 per cent of net income from all sources upon submission of receipts to your District Income Tax Office. Charitable donations made through professional practice should be excluded from professional expenses and claimed as a deduction from income generally, along with any donations made otherwise.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees, to be recorded on the return, will be admitted as a charge.

For 1965 and subsequent years, tuition fees paid to an educational institution in Canada for a postgraduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course.

(i) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments, the interest is chargeable against the investment income. If the loan was for personal purposes no deduction from income will be allowed for the interest paid thereon.

(j) Business tax will be allowed as an expense but income taxes will not be allowed.

(k) Automobile expenses:

Taxi fares and automobile expenses incurred in earning the income from the dental practice will be allowed when the dentist must visit the patients at their homes. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income. (The manner of calculating claims for automobile expenses is described in Information Bulletin No. 28 issued by the Taxation Division of the Department of National Revenue and reprinted in part on pages 209-210 of the March 1965 issue of the Journal.)

(1) Social club dues are allowable as deductions from income only when, and to the extent that, they are paid for business purposes, and any dentist claiming them may be required to prove, to the satisfaction of the taxation authorities that the amount claimed was expended wholly and directly for the purpose of increasing his business income. 'Social club dues' means annual or monthly membership dues or fees; it does not include an initiation or entrance fee or the cost of a share of a club's capital stock, nor does it include charges for food and drink, living accommodation, fees for the introduction of guests and the like.

(m) Capital Cost Allowance (Depreciation):

The method of computing capital cost allowance for tax purposes is the same as that used last year. However, due to changes in the Income Tax Regulations, dentists (and other taxpayers) will be allowed to claim capital cost allowances on one-half, only, of the cost of assets in classes 3 (brick building — office or residence used both as dwelling and office), 6 (frame building — office or residence used both as dwelling and office), and 8 (dental equipment including instruments each costing \$100 or more; office furniture and fixtures) which were acquired after March 29, 1966 and before April, 1967.

For further information on the subject you may refer to the Regulations or you may consult your District Income Tax Office.

CONVENTION EXPENSES

Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. There are no geographical restrictions and the convention, therefore, need not necessarily have been held in Canada. The expenses to be allowed must be reasonable and the taxpayer should show:

1. The dates on or between which the

convention was held, and the location thereof;

2. The number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization; and

3. The expenses incurred, segregating (a) transportation expenses, (b) meals, and (c) hotel expenses, for which at least vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the fact that the taxpayer's wife (or husband) accompanied him to the convention must be excluded from the foregoing.

No expenses for attending a convention are allowable as a deduction from salary income, since such a deduction is prohibited by Section 5 of the Act.

REGISTERED RETIREMENT SAVINGS PLANS

The amount that is deductible in respect of contributions to a retirement savings plan is limited:

(a) In the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to \$1,500 or 20 per cent of his earned income, minus the amount, if any, he is allowed to deduct from income for his contribution to the pension fund.

(b) In other cases, to the lesser of \$2,500 or 20 per cent of his earned income. 'Earned income' usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income.

The amounts deductible are those paid in 1967 and within 60 days after the end of the year. A payment made in January or February 1967 cannot be claimed in 1967 if it could have been deducted in 1966.

Individuals enquiring whether a proposed or existing plan is acceptable should usually obtain that information from the corporation offering the plan as it will normally be the corporation's responsibility to explain the plan and get it registered.

Dentists who have applied for membership in the Canadian Dental Association Retirement Savings Plan prior to February 15, 1968 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1967. The closing date for applications and contributions applicable to 1967 is February 15, 1968.

A personal statement of account and a receipt showing the amount of contributions will be mailed in March 1968 to each participant to support claims made for deductions in 1967 income tax returns.

Applications for membership in CDARSP received after February 15, 1968 will entitle participants to tax deferment for 1968.

PAYMENT OF TAX

Individuals whose income is more than 25 per cent derived from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during such year on the following dates, March 31, June 30, September 30 and December 31.

DENTISTS UNDER SALARY CONTRACT

The Income Tax Act provides for the deduction of certain expenses from salary income.

The allowable expenses include travelling expenses, annual professional membership dues, office rent, salary to an assistant or substitute and supplies consumed directly in the performance of the duties of employment.

Certain conditions are attached to the allowance of the expenses. Without trying to recite the exact provisions of the law the main points are:

(a) That the expenses must have been incurred in the performance of the duties of the office for employment.

(b) That the employee is required under the contract of employment to pay the expenses.

(c) To claim travelling expenses the employee must be ordinarily required

to carry on the duties of his employment away from his employer's place of business. Travelling between the dentist's home and his office is not included.

INCOME FROM A PARTNERSHIP

Additional expenses incurred by a partner, but not charged to the partnership, may be claimed as a deduction from the partner's share of income. However, the partner must be in a position to substantiate these expenses, to show why

they were not charged to the partnership and that they were necessarily laid out to earn partnership income.

PROVINCIAL TAXES ON INDIVIDUALS

Each of the 10 provinces imposes its own tax on the income earned by an individual in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax.

Déclaration fédérale d'impôt sur le revenu

Le Ministère du Revenu National a révisé les instructions suivantes, qui ont pour but d'aider les dentistes à préparer leur déclaration annuelle, pour l'imposition sur le revenu.

LE REVENU

Chaque dentiste doit tenir un compte exact des revenus qu'il retire de sa profession (honoraires) et d'autres sources (placements, loyers de biens immobiliers, etc.). Les comptes doivent être clairs et susceptibles d'être comparés rapidement à la déclaration remise. Les comptes doivent être tenus dans des livres à cet effet, lesquels doivent être conservés tant que le dentiste ne reçoit pas la permission écrite de s'en défaire du ministre du Revenu national.

LES FRAIS

Les postes suivants devraient figurer sous la rubrique des frais, et on doit conserver aux fins de vérification les docu-

ments à l'appui des dépenses qui y sont portées:

- (a) Fournitures dentaires et assimilées.
- (b) Préposé à l'entretien, infirmière, comptable, blanchisserie et assurance contre la négligence professionnelle:

Le montant des appointements et salaires payés doit être déclaré sur des feuillets T4, fournis par le Bureau de district de l'impôt sur le revenu. (La Loi de l'impôt sur le revenu n'autorise pas la déduction d'un salaire payé par le mari à la femme ou vice versa. Si une telle somme est versée, elle doit être rajoutée au revenu du payeur.)

- (c) Frais de téléphone liés à l'exercice de la profession.

- (d) Salaire d'assistante:

Les noms et adresses des assistantes auxquelles un salaire est payé, ainsi que le montant payé, doivent être déclarés chaque année, au plus tard le dernier jour de février, sur le feuillet T4. (Ne pas confondre avec la déclaration d'impôt individuelle, la formule T1, qui doit être envoyée au plus tard le 30 avril de chaque année.)

- (e) Frais de loyer:

On doit fournir le nom et l'adresse du

propriétaire des locaux loués (de préférence) ou de l'agent [voir (g)].

(f) Frais de poste et papeterie.

(g) Dépenses proportionnelles du dentiste exerçant à son domicile:

1. La résidence appartient au dentiste: Quand le dentiste exerce dans une maison qu'il possède et qu'il habite, il a droit, pour la surface occupée par le laboratoire, le cabinet et la salle d'attente, à une déduction proportionnelle des dépenses de la maison calculée d'après le rapport de cette surface à la superficie totale de la maison. Les frais comprennent les taxes, l'électricité, le chauffage, l'assurance, les réparations et l'intérêt hypothécaire. (Les nom et adresse du créancier hypothécaire doivent être mentionnés). N.B.—Voir article 2 (m) pour la dépréciation.

2. La résidence est louée par le dentiste: Le loyer est alors divisé proportionnellement s'il est payé par le dentiste. Le propriétaire de la maison assume toutes les dépenses mentionnées ci-dessus (paragraphe 1).

(h) Frais divers (ne figurant pas ailleurs):

Les frais portés à ce poste doivent se prêter à l'analyse et être étayés par des documents.

La déduction de dons de charité est autorisée jusqu'à 10 pour cent du revenu net total, à condition de fournir les reçus au Bureau de district de l'impôt. Les dons de charité effectués dans l'exercice de la profession ne doivent pas être classés avec les frais professionnels, ils constituent, comme toutes les autres formes de dons, une déduction du revenu général.

Les droits annuels payés aux organismes de réglementation qui accordent l'autorisation de pratiquer, ainsi que les cotisations d'association doivent être inscrits sur la déclaration comme frais professionnels.

Les frais de scolarité payés en 1965 et les années suivantes à une maison d'enseignement au Canada, pour un cours post-universitaire, sont déductibles, mais on ne peut pas déduire les dépenses de voyage et d'entretien occasionnés par un tel cours.

(i) L'intérêt versé sur une somme empruntée peut être soustrait du revenu professionnel si l'emprunt a été fait pour

des besoins professionnels. Si la somme a été empruntée pour effectuer un placement, l'intérêt est déductible du revenu de placements. L'intérêt payé sur un emprunt effectué à des fins personnelles ne donne lieu à aucune déduction sur le revenu.

(j) La taxe d'affaire constitue une dépense professionnelle, mais non les impôts sur le revenu.

(k) Frais d'automobile:

Les dépenses de taxi et d'automobile encourues en gagnant le revenu professionnel sont déductibles lorsque le dentiste doit rendre visite au patient à domicile. Cependant le coût du transport entre le domicile du dentiste et son cabinet n'est pas déductible du revenu. (La façon de calculer la réclamation des dépenses d'automobiles est exposée dans le Bulletin de renseignements No. 28 de la Division de l'impôt du Ministère du Revenu National. Elle a été partiellement reproduite dans le numéro de mars 1965 du Journal, pp. 209-210.)

(1) Les cotisations des clubs mondains ne constituent une déduction du revenu que lorsque, et dans la mesure où, elles sont versées pour des raisons professionnelles, et tout dentiste qui les déduit peut être requis de prouver à la satisfaction des autorités fiscales que les sommes réclamées ont été dépensées entièrement et directement dans le but d'accroître son revenu professionnel. Les 'cotisations de clubs sociaux' représentent les cotisations ou droits, annuels ou mensuels, des membres; elles ne comprennent pas les droits d'admission ou d'entrée, ni l'achat d'une part du capital social d'un club, ni les frais de nourriture, de boisson ou de logement, ni les droits versés pour y recevoir des invités et autres du genre.

(m) Allocation du coût en capital (dépréciation):

La façon de calculer l'allocation du coût en capital aux fins de l'impôt est la même que celle de l'année dernière. Cependant, des modifications apportées aux Règlements de l'impôt sur le revenu ne permettront aux dentistes (et aux autres contribuables) de réclamer l'allocation de coût en capital que sur la moitié seulement des biens figurant dans les classes 3 (maison de brique—cabinet ou résidence

servant et de domicile et de cabinet), 6 (maison de bois — cabinet ou résidence servant et de domicile et de cabinet) et 8 (matériel dentaire et instruments de \$100 ou plus, mobilier et accessoires de cabinet), qui ont été acquis après le 29 mars 1966 et avant le 1er avril 1967.

Pour tous renseignements supplémentaires, consultez les Règlements ou le Bureau de district de l'impôt.

FRAIS DE CONGRÈS

Les frais des congrès sont déductibles pour celui qui exerce une profession, mais l'allocation est limitée aux frais de deux congrès par année fiscale. La participation du contribuable au congrès doit se fonder sur des motifs professionnels. Il n'y a aucune restriction géographique, le congrès peut donc avoir lieu en dehors du Canada. Les dépenses déductibles doivent être raisonnables et le contribuable doit indiquer:

1. Les dates auxquelles ou entre lesquelles le congrès s'est tenu, et le lieu.
2. Le nombre de jours de présence, justifié par un certificat de présence délivré par l'organisme responsable du congrès.
3. Les frais encourus, en distinguant les frais (a) de voyage, (b) de repas, (c) d'hôtel, à l'appui desquels on doit demander et conserver au moins les reçus.

Toutes les dépenses de nature personnelle, y compris celles qui seraient entraînées par la présence au congrès de l'épouse (ou du mari) du contribuable sont exclues de ce qui précède.

Les frais de participation à un congrès ne peuvent pas être déduits du revenu si celui-ci est un salaire; une telle déduction est alors interdite par l'article 5 de la Loi.

PLANS D'ÉPARGNE-RETRAITE ENREGISTRÉS

Le montant déductible pour ceux qui contribuent à un plan d'épargne-retraite enregistré se limite:

- (a) Dans le cas d'un employé percevant un salaire et couvert par un plan ou un fonds de pension enregistré, (qu'il cotise

au fonds de pension ou non)—à \$1,500 ou 20 pour cent du revenu gagné, moins le montant, s'il y en a un, qu'il est autorisé à déduire de son revenu pour sa contribution au fonds de pension.

(b) Dans les autres cas, au moindre de \$2,500 ou de 20 pour cent du revenu gagné. Le 'revenu gagné' comprend d'ordinaire le salaire perçu (avant toute déduction pour pension) ou le revenu provenant d'un commerce ou de l'exercice d'une profession, plus les revenus nets de loyers.

Sont déductibles les sommes qui ont été versées en 1967 et pendant 60 jours après la fin de l'année. Un versement effectué en janvier ou février 1967 ne peut pas être déduit en 1967 s'il aurait pu l'être en 1966.

Pour savoir si un plan futur ou existant donne droit à la déduction, on doit se renseigner auprès de la société qui offre le plan, car c'est elle qui normalement est responsable d'expliquer le plan et de le faire enregistrer.

Les dentistes qui ont demandé à bénéficier du Plan d'épargne-retraite de l'Association dentaire canadienne (PERADC) avant le 15 février 1968 sont assurés qu'ils sont inscrits comme cotisants à un plan d'épargne-retraite enregistré et que leur contribution est déductible pour l'année fiscale 1967. La date limite des inscriptions et des contributions pour 1967 est fixée au 15 février 1968.

Un état de compte personnel et un reçu indiquant le montant des contributions seront adressés à chaque cotisant en mars 1968, à l'appui des déductions réclamées dans la déclaration d'impôt sur le revenu pour 1967.

Les demandes d'inscription au PERADC reçues après le 15 février 1968 donnent droit à la prorogation de l'impôt pour 1968.

PAIEMENT DE L'IMPÔT

Les particuliers qui retirent plus de 25 pour cent de leur revenu de sources autres qu'un traitement ou un salaire sont requis de payer l'impôt de chaque année par versements trimestriels au cours de l'année, aux dates suivantes: 31 mars, 30 juin, 30 septembre et 31 décembre.

DENTISTES RÉMUNÉRÉS PAR CONTRAT

La loi de l'impôt sur le revenu autorise à déduire certains frais d'un revenu constitué par un traitement.

Les frais déductibles comprennent: les frais de déplacement, les cotisations professionnelles, le loyer de bureau, le salaire d'un assistant ou de son suppléant, les fournitures nécessaires à l'exercice de la fonction de l'employé.

Certaines conditions sont attachées à la déduction des frais. Les dispositions de la loi sont, en gros:

(a) Que les frais aient été encourus dans l'exercice des fonctions de l'employé.

(b) Que le contrat d'emploi stipule que les frais sont à la charge de l'employé.

(c) Pour réclamer les frais de déplacement, que l'employé soit contraint d'exercer les fonctions de son emploi loin du lieu d'affaires de son employeur. Les déplacements entre le domicile du dentiste et son cabinet sont exclus.

REVENU D'UNE SOCIÉTÉ

Les dépenses supplémentaires encourues par un associé et qui n'ont pas été payées par la société peuvent être déduites de la part de revenu de l'associé. Cependant l'associé doit être en mesure de justifier ces dépenses, d'expliquer pourquoi elles n'ont pas été assumées par la société et de montrer qu'elles ont été entreprises nécessairement pour gagner le revenu de la société.

IMPÔT PROVINCIAL DES PARTICULIERS

Chacune des 10 provinces lève son propre impôt sur le revenu des particuliers qui y résident. Les particuliers dont le revenu est soumis à l'impôt provincial ne sont pas tenus d'envoyer une déclaration provinciale d'impôt sur le revenu séparément, excepté pour la province de Québec.

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Listed below are the names of individuals on whose behalf Living Memorial donations were received by the Canadian Fund for Dental Education during the year November 1966 to October 1967.

Voici la liste des personnes décédées en mémoire desquelles leurs parents et amis ont envoyé une donation au Fonds canadien pour l'enseignement dentaire, depuis novembre 1966 à octobre 1967.

Mrs. P. Allen
Dr. E. C. Apps
Mme J. Archambault
Mme C. Asselin

Dr. D. J. Bagshaw
Dr. J. W. Bartholomew
Mr. H. A. Beaton
Mme J. L. O. Bégin
Dr. G. D. Beierl
Dr. R. A. Bell
Dr. J. M. Benson
Dr. W. J. Blackburn
Dr. W. M. Blair
Mr. G. Boljkovac
Dr. A. J. Boothman
M. E. Bougie
Dr. S. W. Bradley
Dr. A. J. Brett
Dr. L. L. Buffett

M. J. Z. Cadieux
Dr. and
Mrs. F. W. Canning
Dr. J. Carson
Dr. H. L. Cheney
Dr. S. H. Churchill
Dr. H. J. Clapson
Dr. W. J. Cooper
Dr. S. H. Corben
Mrs. J. Crocker
Dr. C. Dent
Dr. R. A. Dunlop
Mrs. E. G. Eisner
Dr. R. A. Erickson
Dr. C. H. Farley
Dr. J.-N. Fontaine
Dr. T. H. Graham
Dr. R. N. Grant

Dr. J. E. Hackett
Mr. J. A. Hainault
Dr. E. S. Harris
Dr. H. L. Harris
Dr. W. L. Hipwell
Dr. H. A. Hoskin
Dr. L. A. Kilburn
Mrs. A. L. King
Dr. J. L. King
Dr. W. R. Langdon
Mme E. E. Lepine
Mme R. E. Lussier
Dr. J. A. Marshall
Dr. S. G. McCaughey
Mr. R. D. McLeod
Dr. S. F. Miles
Mrs. R. W. Mitchell
Dr. W. O. Nursey

Dr. W. Orobko
Dr. J. H. A. Peters
Dr. P.-E. Poitras
Dr. T. J. Regnier
Dr. H. Rivkin
M. F. Robichaud
Dr. H. M. Sanderson
Dr. H. A. Simmons
Dr. W. K. Sproule
Dr. C. G. Stewart
Dr. A. Surprenant
Mrs. C. Sweet
Dr. M. A. Thompson
Dr. R. L. Toren
Dr. F. E. Warriner
Dr. J. M. Williams
Mr. R. V. Williams
Dr. W. W. Woodbury

Canada

Nomination du Dr Lipkind comme administrateur du FCED

Le Fonds canadien pour l'enseignement dentaire a annoncé la nomination au conseil d'Administration du Dr M. J. Lipkind, de Calgary. Ancien président de l'Association dentaire de l'Alberta, le Dr Lipkind est également rédacteur de l'*ADA News-Information*, publiée par l'Association de l'Alberta. Il remplace le Dr W. P. Munsie, de Vancouver, membre fondateur, actuellement président de l'Association dentaire canadienne.

Les recettes de la conférence Alpha Omega seront versées au FCED

Cette année, les recettes d'une conférence dentaire aideront à payer des bourses d'enseignement offertes par le Fonds canadien pour l'enseignement dentaire. Elles proviendront de la conférence du Centenaire, organisée par la fraternité Alpha Omega, chapitre des anciens étudiants de l'Université de Toronto, du 25 au 27 septembre. Ce projet d'aide à l'enseignement de la dentisterie est la première initiative de ce genre prise au Canada.

Chronique internationale

Un congrès d'endodontie se tiendra en avril à Philadelphie

La Faculté dentaire de l'Université de Pennsylvanie, à Philadelphie, sera le site du 4ème congrès international d'endo-

dontie, qui se tiendra du 1er au 3 avril 1968. Ont été prévus trois symposia sur les préparations antibiotiques corticoïdes, sur le traitement endodontique-périodontique et sur la replantation intentionnelle. De plus, il sera réservé une période de discussion sur les effets du N2 dans le traitement des dents sans pulpe. Les frais d'inscription de \$150 couvrent les déjeuners et une copie des transactions du Quatrième congrès international d'endodontie, qui seront publiées en juin 1968. Pour plus de renseignements, veuillez écrire à Mrs. Mary W. Kolb, secretary, Fourth International Conference on Endodontics, 4001 Spruce Street, Philadelphia, Pennsylvania 19104, USA.

L'hôpital de Pittsburgh offre un internat en pédodontie

Des demandes d'inscription peuvent être faites, à l'Hôpital des Enfants, à Pittsburgh, Pennsylvanie, pour un stage dentaire d'un an qui commencera le 1er juillet 1968. L'hôpital est affilié au département de pédodontie de la faculté dentaire de l'Université de Pittsburgh.

Ce programme offre une formation à la fois didactique et clinique. Le personnel organisera des séminaires pour traiter des problèmes pédiatriques qui influencent le traitement dentaire. Le département de pédodontie de la faculté dentaire dirigera ces séminaires. Les services cliniques comprendront les traitements pédodontiques courants et plus élaborés, le traitement pédodontique de l'enfant atteint de maladie générale, les soins dentaires pour les enfants infirmes et le traitement des enfants qui ont besoin d'une anesthésie générale. Les internes recevront un traitement annuel de \$4,500. Pour obtenir de plus amples renseigne-

ments ou des formules d'inscription, veuillez écrire à l'adresse suivante: Dr P. A. Sciullo, Director of Dental Services, Children's Hospital of Pittsburgh, 125 Desoto Street, Pittsburgh, Pennsylvania 15213, USA.

Economie

89 condamnations pour pratique illégale au Québec

Au cours de l'année dernière, il y a eu au Québec 89 condamnations pour pratique illégale de la dentisterie, d'après l'édition de septembre de *L'Information*, publiée par le Collège des chirurgiens-dentistes de la province de Québec. Des amendes d'un total de \$18,475 ont été imposées entre le 30 juin 1966 et le 1er juillet 1967. Ces chiffres représentent 37 condamnations et \$12,150 de moins que l'année précédente.

Fluoration

La fluoration préserve les dents et réduit les frais dentaires

Deux villes de Californie nous font part d'une diminution de la carie dentaire chez

les jeunes et de la réduction considérable des frais dentaires. Les programmes de soins dentaires pour les enfants à San Francisco et Vallejo, deux villes qui ont fluoré leur eau, n'ont coûté qu'environ le tiers des sommes dépensées par des services similaires, dans les villes de Californie, dont l'eau n'est pas fluorée. Les résultats de la fluoration sont évidents lorsque l'on considère la diminution marquée du nombre de caries dentaires. En conséquence, les extractions sont moins nombreuses, les obturations moins importantes et les soins dentaires beaucoup moins onéreux.

Recherche

Test du sel fluoré en Colombie

Les résidents de quatre villages perdus dans les hauteurs de la Cordillère des Andes, en Colombie, participent à un test pour déterminer si l'addition de sel fluoré au régime alimentaire réduit l'incidence de la carie dentaire de façon aussi efficace que l'usage d'eau fluorée. Une équipe de médecins, de dentistes et d'experts en nutrition de l'Université d'Antioquia à Medellin, Colombie, a entrepris une étude à long terme, financée avec l'aide du US National Institute of Dental Research.

Radiation Hazard Control • A wall chart on measures for control of radiation hazards in the use of dental x-ray apparatus has been mailed to every member of the Canadian Dental Association. Reproduced on the chart is the statement by the CDA Council on Research published in the July issue of the Journal and the 1967 CDA Transactions.

Contrôle des dangers de radiation • Tous les membres de l'Association dentaire canadienne ont reçu un tableau mural sur les mesures à prendre, pour contrôler les dangers de radiation résultant de l'usage des appareils de radiographie dentaire. La déclaration du Conseil de recherches de l'ADC, qui a été publiée dans le numéro de juillet du Journal et qui a été incorporée au compte-rendu des *Délibérations* de l'ADC, en 1967, figure sur ce tableau.

Dental Organizations

Royal College Examination Results Announced

The Royal College of Dentists of Canada has announced the names of successful candidates in the Part I (Basic Sciences) examinations held September 28-30, 1967. They are:

Endodontics: R. L. Tegart, Edmonton;

Oral Surgery: P. Chapnick, Toronto; V. N. Direnfeld, Willowdale, Ontario; M. Kaburda, Burnaby, British Columbia; F. W. Lovely, Halifax; and C. W. Oyer, Calgary, Alberta;

Orthodontics: V. P. Gilbert, Toronto; E. D. MacKay, Brampton, Ontario; and M. E. Sera, Willowdale, Ontario;

Prosthodontics: M. C. McClelland, Edmonton; and G. A. Zarb, Toronto.

Western Canada Assn. Meets

Dentists, dental hygienists and dental assistants from the Prairie Provinces met in Regina when the Western Canada Dental Society held its biennial meeting October 8-11.

The WCDS House of Delegates approved a proposal to establish a scholarship fund of \$5,000 at the College of Dentistry, University of Saskatchewan; agreed to forego a convention in Winnipeg in 1969 because a Canadian Dental Association national convention will be held in that city in 1970; and accepted a proposal to hold the next WCDS convention in Calgary in 1971.

The new WCDS president is J. C. Wad-

dell of Calgary. He succeeds R. E. Dickson of Saskatoon.

Form BC Chapter of Children's Dentistry Association

British Columbia dentists interested in dentistry for children have formed a provincial chapter of the Canadian Society of Dentistry for Children. D. A. Hopgood and G. M. Jinks, both of Vancouver, are president and secretary respectively of the new society.

Dr. Bullock is President of Lethbridge Society

G. A. Bullock was recently elected president of the Lethbridge and District Dental Society for the 1967-68 term. Other officers are T. Okamuro, vice-president, and K. E. Komm, Taber, secretary-treasurer.

Canadian Dental Schools

McGill U Offers Rotating Internships

The Faculty of Dentistry, McGill University, Montreal, will offer up to seven rotating dental internships beginning July 1, 1968. Opportunity for service and training is provided in three leading McGill teaching hospitals: the Montreal General Hospital, the Montreal Children's Hospital and the Royal Victoria Hospital. Dental departments of all three institu-

tions are approved by the Canadian Dental Association's Hospital Dental Services Committee. Participants receive \$304 per month plus meals and uniforms. Further information and application forms are obtainable from the chairman, McGill-Hospitals Dental Internship Program, Faculty of Dentistry, McGill University, Montreal 2, P. Quebec.

International Items

Geriatric Dentistry Symposium Feb. 3-4

The American Society for Geriatric Dentistry will hold a two day meeting in the Conrad Hilton Hotel, Chicago, February 3-4, 1968. Guest speakers include A. C. Macaluso whose subject will be "Why Functional Mounting in Complete Dentistry?" and L. D. Boshes, neurologist and psychiatrist at the University of Illinois and Michael Reese Hospital in Chicago, who will discuss "The Change in Pace and Pattern of the Elderly."

A workshop will be conducted to consider various phases of practice and administration in dentistry for the elderly in private offices, nursing homes and hospital clinics. Dental school curricula and medico-dental relations in geriatrics will also be discussed.

Further information may be obtained by writing to K. A. Freedman, 11838 South Western Avenue, Chicago, Illinois 60643, USA.

Canadians Invited to Michigan Meeting

Members of the Canadian Dental Association have been invited to participate in one of America's largest state dental annual meetings, that of the Michigan State Dental Association. The meeting will be held April 29-May 1, 1968, at the Statler Hilton Hotel in Detroit. Any Canadian dentist interested in participating in the table clinic program should contact, as soon as possible, R. A. Reed, 1508 Court Street, Saginaw, Michigan. Information about the proposed table clinic subject

and required equipment should be included.

Pittsburgh Hospital Offers Paedodontic Internship

The Children's Hospital of Pittsburgh, Pennsylvania, is accepting applications for a one year dental internship beginning July 1, 1968. The hospital is affiliated with the Department of Paedodontics, the School of Dentistry, University of Pittsburgh.

The program offers didactic and clinical training. Seminars are presented by the medical staff on paediatric problems influencing dental treatment. The Department of Paedodontics of the School of Dentistry conducts dental seminars. Clinical services include treatment of routine and advanced paedodontic problems, paedodontic treatment of the medically ill child, dental care of handicapped children, and experience in treating children who require general anaesthesia. Interns receive a yearly stipend of \$4,500.

For more information or application forms, write to P. A. Sciuillo, Director of Dental Services, Children's Hospital of Pittsburgh, 125 Desoto Street, Pittsburgh, Pennsylvania 15213, USA.

Royal Canadian Dental Corps

Brig. Kearney Visits Germany

Brig. B. P. Kearney, Director General of Dental Services for the Canadian Forces, attended the (United States Army in Europe) USAREUR Dental Conference in Garmisch, Germany, in October. While overseas he inspected the dental facilities in the Canadian Air Division, Lahr, Germany.

Lt-Col. Brick Attends Dieppe Anniversary

Lt.-Col. J. C. Brick attended the 25th anniversary celebration of the Dieppe

Raid, August 17-22 at Dieppe, France. Lt.-Col. Brick participated in the Dieppe Raid as regimental signal officer with the Essex Scottish Regiment from Windsor, Ont.

Economics

New Dental Finance Plan in Alberta

The Alberta Dental Association has launched a new scheme to help patients obtain necessary dental treatment. Called the Alberta Dental Financing Plan, the scheme allows a patient to apply to a Toronto-Dominion Bank branch for a loan to cover his dentist's estimated fee for treatment. The bank then makes the usual credit investigations. Treatment may commence after the bank gives written notification of approval of the applicant. Loans may range from \$75 to a maximum of \$1,200.

Upon completion of the treatment, the dentist is paid within the prescribed limits, less a 5 per cent withholding charge. If the final fee is less than originally estimated, only the final fee may be claimed from the bank. If the final fee exceeds the original estimate, only the estimated fee may be claimed from the bank and the patient may be billed for the remainder.

The withholding charges are deposited in a reserve account to cover defaulted loans. The 5 per cent withholding level may be reduced after a suitable reserve has been established.

Patients repay their loans to the bank in regular instalments. The bank has no recourse to the dentist if a patient defaults.

Dentists May Withdraw from Hospitals, Says BCDA President

British Columbia Dental Association President A. E. Swanson will recommend that dentists withdraw the services they have been volunteering in BC hospitals unless the provincial government re-

sponds to pleas for amendments to the Hospital Act which would permit dentists the right to practise in government supported institutions. Under existing law it is illegal for a dentist to perform these services.

"Despite the fact that such services have been rendered for many years in many hospitals in British Columbia," says Dr. Swanson, "and despite the fact that well organized dental services, some including 30 dentists at single institutions, have been given gratuitously for indigent citizens, the provincial government has declined to respond to our plea for amendments pertaining to the Hospital Act..."

BC Service Corporation Negotiates New Contracts

Northern Construction Company recently signed with the Dental Services Association of British Columbia for prepaid dental care for its employees. This is the fourth such contract entered into by the Dental Service Association. The plan involves 130 employees and their dependants.

Under negotiation is a plan with the Burnaby Teachers' Federation which will involve about 3,000 persons.

W. M. Joiner, Vancouver, president of DSABC, has announced that an internal professional relations program is being developed. Its purpose is to give every dentist member the latest information about DSABC activities.

Denture Clinics Show Profit in BC

Denture clinics operated by the dental profession in British Columbia showed an overall profit during a seven month period from November 1966 to May 1967.

The Vancouver clinic had a profit for five of the seven months, with an average gain of \$93.08; the Victoria clinic also had a profit for five of the seven months, with an average gain of \$198.45. The New Westminster clinic showed an average profit for the seven months of \$416.42. There was only one month when this clinic did not come out ahead.

Denture clinic advertisements are to be shown on Vancouver buses for a three month period in order to increase the Vancouver clinic's volume.

BC Dental Laboratory Advertising Banned in Washington

The Washington state attorney general's office has advised newspapers in that state not to accept advertising from British Columbia dental laboratories. Under Washington state law a dental laboratory is not allowed to advertise to the public and must announce in directory listings that it "serves licensed dentists only."

Dental mechanics in British Columbia are licensed to deal directly with the public and are allowed to identify themselves to the public. In the state of Washington only a licensed dentist may identify himself to the public as a provider of dental services.

The Washington State Dental Association called the attention of the State Division of Professional Licences to advertisements placed in three Washington newspapers by a BC dental mechanic. The matter was then taken up by the attorney general's office who requested that the three papers "refuse to accept future advertisements from dental laboratories in British Columbia which are seeking to attract business from citizens of this state without the proper supervision of a licensed dentist."

Fluoridation

Three Large Cities Begin Fluoridation

Three major urban centres, where plebiscites held in 1966 resulted in a favourable majority for fluoridation, have all commenced to fluoridate their water supplies according to advice received by the Canadian Dental Association.

Edmonton, whose water system supplies 380,800 people in the city and suburbs, started to fluoridate on August 29;

London's 180,000 people have received fluoridated water from September 1, while Hamilton, which also supplies Dundas and Stoney Creek, commenced its program on October 23 for the 315,000 people on its water system.

These additions represent 875,000 more people served by fluoridated drinking water. They bring the total using controlled fluoridation in Canada to over 5,900,000 people.

New Fluoridation Deal Sought in BC

The Associated Boards of Health of British Columbia, at their recent annual meeting in Stanley Park, urged that provincial law be changed to ease the way for fluoridation of water supplies. Under existing law a 60 per cent favourable vote is required before water can be fluoridated in any community.

The meeting passed a resolution that a plebiscite be held only if 10 per cent of the electors sign an anti-fluoridation petition within 30 days of a council's announced intention to fluoridate, according to a report in the *Vancouver Sun* of October 4. The resolution also asked that only a 51 per cent majority in favour be required under these circumstances.

It was also pointed out that fluoridated water is available to only 8 per cent of British Columbia's population. The federal government will be asked to provide grants for fluoridation equipment (up to \$5,000 or 50 per cent of the costs) to communities with a population of less than 10,000.

Two Alberta Municipalities Accept, Five Reject Fluoridation

Two of seven communities voted in favour of fluoridation in plebiscites held in Alberta October 18.

Pincher Creek and Taber are the two municipalities which approved fluoridation. The measure was defeated in Vauxhall, Brooks, Lethbridge, Viking and Wainwright.

Out of 31,696 eligible voters only 10,764 turned out to cast ballots.

Public Health

Dental Hygiene Consultant Appointed in Ottawa

Sharon Amer of Vancouver, the first Canadian to earn a masters degree in dental hygiene, has been appointed to a new Ottawa post to assist in the development of dental hygiene education, services and opportunities throughout Canada. She will be available to help provincial authorities develop and improve public health unit programs and will make available a consultative service to all dental faculties with special emphasis on those starting or expanding dental hygiene programs. Miss Amer will assist the Department's dental health officer in the preparation of dental health education materials. She will also collaborate with the research officer in intramural and extramural research and advise the chief of the Dental Health Division in all matters pertaining to dental hygiene.

Miss Amer earned a bachelor of arts degree in sociology and psychology from the University of British Columbia, and then went to Columbia University in New York City for bachelor and master of science degrees in dental hygiene.

citation described former CDA President Whyte as a "citizen, a soldier and a dentist" who "has always conducted himself . . . in a manner that reflects great credit to the profession of dentistry."

Mildmay, Ontario, citizens honoured **E. J. Weiler** at a reception on August 21 to mark Dr. Weiler's retirement after more than 40 years of practice in Mildmay.

C. H. M. Williams was elected president of the American Academy of Periodontology on October 28. Dr. Williams, who is professor and chairman of the Department of Periodontics at the University of Toronto, is internationally renowned for his contributions to the science and practice of periodontics.

F. H. Compton, editor of the *Journal of the Canadian Dental Association*, was elected president of the American Association of Dental Editors in Washington, October 28.

CDA Secretary **W. G. McIntosh** was named an honorary member of the American Dental Association on October 30. Dr. McIntosh received the ADA's highest award for his fostering of "close

Awards and Honours

Former CDA Secretary **Don W. Gullett** was elected an associate member of the Académie Nationale de Chirurgie Dentaire in Paris, France, last July 19.

G. V. Fisk and **I. H. Ante, Sr.** were made honorary life members of the Academy of Dentistry (Toronto) when that organization held its opening annual dinner on October 26.

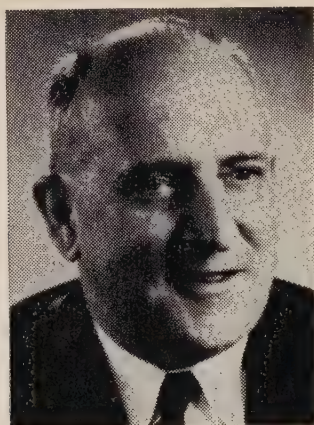
Honorary life membership in the Saskatchewan College of Dental Surgeons was awarded to **J. P. Whyte** of Swift Current on October 10. The accompanying



CDA Secretary W. G. McIntosh has become an honorary member of the American Dental Association. ADA President W. A. Garrett (l.) bestowed his association's highest award October 30 at the opening meeting of the ADA's 108th annual session in Washington.

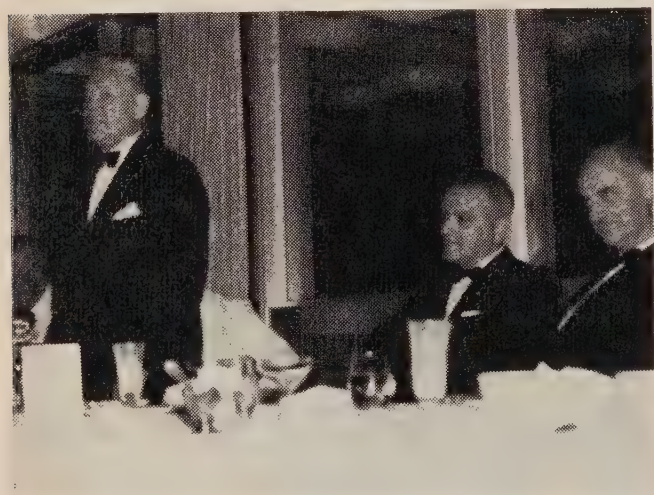
and cordial relations" between the Canadian and American Dental Associations.

V. S. Wilson



V. S. Wilson of Islington, Ontario, was honoured recently when the new Etobicoke Hydro building bearing his name was officially opened. The V. S. Wilson Administration Building was so named in recognition of Dr. Wilson's many years' service to the Etobicoke Hydro.

Benjamin Sedlezky, president of the Mount Royal Dental Society and of the Montreal Alumni Chapter of the Alpha Omega Fraternity, has been named honorary president of the Société Dentaire de Montréal for the remainder of his term of office.



CDA Past President J. P. Coupland was honoured at a testimonial dinner tendered by the Ottawa Dental Society June 15, 1967. Distinguished guests included R. G. Ellis, dean of the Faculty of Dentistry, University of Toronto; K. F. Pownall, secretary of the Ontario Dental Association; and CDA Secretary W. G. McIntosh. Other visitors came from as far afield as Pembroke, Smith's Falls, Perth and Brockville, Ontario. Seen in this picture are (l. to r.) Dr. Coupland; J. R. Callingham, Ottawa, chairman of the Dinner Committee; and Dean Ellis.

Deaths

Begin, Fernand. 40. North Bay, Ont. Université de Montréal, 1957. 5-11-67. Servé par son épouse et quatre enfants.

Benson, Joseph Moore. 79. Winnipeg. Registered under Provincial Act, Manitoba, 1909. 4-9-67. Survived by Mrs. J. M. Moore (wife); J. M. and W. L. Benson (sons); Mrs. G. D. Longenecker and Mrs. D. Botterill (daughters); and 14 grandchildren.

Blackburn, William Jeff Xavier. 65. Peterborough, Ont. University of Toronto, 1926. 25-10-67.

Calder, Ian. Yellowknife, NWT. 27-8-67.

Deschênes, Joseph Arthur. 87. Lachine, Qué. Université Laval, 1913. 10-10-67. Servé par Rachel (épouse); Gérard et Pierre (fils); et Charlotte (fille).

Emmett, Frederick James. 60. Vancouver. University of Alberta, 1938. 12-10-67.

Fontaine, Jean-Noel. 50. St-Bruno, Qué. Université de Montréal, 1945. 12-10-67. Servé par son épouse et trois enfants.

Gagnon, Louis Philippe. 62. St-Georges de Beauce, Qué. Université de Montréal, 1929. Juillet 1967.

Hall, Henry Richard. 70. Goderich, Ont. Royal College of Dental Surgeons of Ontario, 1922. 5-10-67. Survived by Florence (wife) and Mrs. Jacob Gofton (sister).

Janes, F. A. 72. Corner Brook, Nfld. Royal College of Dental Surgeons of Ontario, 1922. 2-9-67. Survived by Doris (wife).

King, John Langan. 39. The Pas, Man. McGill University, 1959. 9-9-67. Survived by Anne (wife); Shaun (son); and Amy Louise (daughter).

Poitras, Paul-Emile. 78. Montréal. Université de Montréal, 1913. 17-4-67.

Smith, Charles Ernest. 81. Saskatoon, Sask. Chicago College of Dental Surgeons, Loyola University, 1908. 21-10-67. Survived by Helen (wife); Ernest and Lynwood (sons); Judge Gerald Smith (brother); and Mrs. Rowena Boyce (sister).

Stewart, Charles Graham. 69. Stoney Creek, Ont. Royal College of Dental Surgeons of Ontario, 1921. 6-4-67.

Stewart, Gordon William. 38. 100 Mile

House, BC. University of Toronto, 1956. 9-9-67. Survived by Mr. and Mrs. William Stewart (parents) and Dr. Donald (brother).

Woodbury, William Weatherspoon. 85. Halifax. Philadelphia Dental College, 1908. 13-10-67. Survived by Margaret (wife).

in memoriam

Jean-Noël Fontaine

Le docteur Jean-Noël Fontaine, professeur titulaire du Département de stomatologie de la Faculté de chirurgie dentaire de l'Université de Montréal est décédé le 12 octobre, à l'âge de 49 ans après une brève maladie.

Né à Waterloo, Qué., le docteur Fontaine obtenait en 1945 son doctorat en chirurgie dentaire de l'Université de Montréal. Il servit dans les forces armées canadiennes avec le grade de capitaine jusqu'en 1947.

Boursier de la Fondation Kellogg il fit un stage à l'Université Columbia, New York, et commença sa carrière dans l'enseignement universitaire en 1951 comme professeur assistant en radiographie et diagnostic.

Le docteur Fontaine a été gouverneur et membre de l'Exécutif du Collège des chirurgiens-dentistes de la province de Québec de 1960 à 1964.

Le Journal perd un collaborateur précieux en la personne du docteur Fontaine qui lui avait fourni plusieurs articles aussi bien en français qu'en anglais.

Le docteur Fontaine est survécu par son épouse et trois enfants.

Jean-Noël Fontaine

Dr. Jean-Noël Fontaine, professor of oral diagnosis and dental radiology in the Faculté de chirurgie dentaire, Université de Montréal, died October 12, at the age of 49, after a short illness.

Born in Waterloo, P. Quebec, Dr. Fon-

taine earned a DDS from the Université de Montréal in 1945. He served as a captain in the Canadian armed forces until 1947.

Recipient of a Kellogg Foundation bursary, Dr. Fontaine pursued graduate training at Columbia University, New York City, and commenced a university teaching career in 1951 as assistant professor of radiology and oral diagnosis.

Dr. Fontaine was a governor and a member of the Executive Council of the College of Dental Surgeons of the Province of Quebec from 1960 to 1964.

The Journal loses a valued contributor in Dr. Fontaine who was the author of numerous French and English articles.

Dr. Fontaine is survived by his wife and three children.

Charles Ernest Smith

Dr. C. E. Smith of Saskatoon, Saskatchewan, died on October 21, 1967, at the age of 81. He was born in Napanee, Ontario, in 1886 and graduated from the College of Dental Surgeons, Loyola University, Chicago, in 1908. He settled in Saskatoon in 1909.

Dr. Smith was made an honorary member of the College of Dental Surgeons of Saskatchewan in 1959 in recognition of a lifetime of dedication to the public and the dental profession. He was recently elected to membership in the Royal Society of Health, London, England.

Besides his wife, Helen, Dr. Smith is survived by two sons, Ernest and Lynwood; one sister, Mrs. Rowena Boyce of Belleville, Ontario; and one brother, Judge Gerald Smith of Napanee.

book reviews • analyse

Cavity Preparation and Impression Taking

J. D. Harrison and A. S. Podshadley. St Louis, The C. V. Mosby Company, 1965. 92 p. Illus. \$5.75

In recent years considerable effort has been put forth to discover simpler and more effective teaching procedures. One method which has proven quite effective is programmed instruction. Having been given certain information, the student is required to respond to this information in the form of questions and answers.

Volume 1 of *Cavity Preparation and Impression Taking* is programmed in this manner. The first part deals with the basic principles of cavity preparation. By means of a series of questions (and answers) the student is guided through each of the orderly steps of cavity preparation as outlined by G. V. Black. Part two covers the principles of elastic impression taking in the same manner. It includes methods of tissue displacement and impression taking with hydrocolloid, silicone and polysulphide rubber base materials, and the making of a self curing resin tray.

A minor criticism is the small scope of material included. The principles of cavity preparation are covered very well; but there is no discussion of individual cavity preparation. It is to be hoped that future editions will overcome this aspect.

Making an effective manual of programmed instruction is a very arduous task. This one is well done with many illustrations to assist the student. This reviewer recommends it for instructional aid in restorative dentistry.

G. H. Gibb

tist and nurse. The subject matter is arranged somewhat differently than is usual in textbooks of microbiology.

Emphasis is laid on the practical application of sterilization. Theoretical considerations of the mechanisms of bacterial resistance and the dynamics of action of sterilizing agents are not discussed separately but are introduced at appropriate places in the discussion of a particular sterilization method or apparatus.

The first two short chapters deal with the dynamics of killing bacterial populations and with testing methods of sterilization. This is followed by a section describing various types of apparatus and their function for dry and moist heat sterilization, their range of usefulness, and the common mistakes made in their maintenance and operation.

Before embarking on a description of chemical sterilization and disinfection, the authors stress the importance of adequate contact between sterilizing agents and the object to be sterilized. This is well presented in a chapter about preparation, wrapping and packing of objects and in a subsequent section about sterilization with gases and radiation. These last two chapters are actually oriented to industrial application as both methods can only be used with safety on a large scale in industry. Leaving out unnecessary details these aspects are interesting to read, including, as they do, a section on sterilization of fluids and room air.

Three chapters follow on sterilization of the environment and objects in hospitals and medical and dental offices. These contain many practical suggestions for office procedures. The book ends with a short chapter on sterilization of pharmaceutical and biological products. Though by no means complete, this chapter provides an insight into the preparation and the precautions taken to ensure sterility of the medicaments and articles that practitioners use.

The book is easy to read and well illustrated with many graphs and diagrams. For those who want to study the subject further, more than 300 references, all of recent date, are listed. To facilitate the selection of papers, the authors have added a one sentence comment to those references where the content of the paper is not clearly indicated in the text.

E. M. Madlener

A Review of Sterilization and Disinfection

S. D. Rubbo and Joan F. Gardner. Chicago, Year Book Medical Publishers, Inc., 1965. 250 p. Illus. \$7.70

The authors have reviewed those aspects of the broad field of sterilization which are important for the practising physician, den-

Local Anaesthesia in Dentistry

Angelo Sargenti. London, Henry Kimpton, 1966. 78 p. Illus. 15s.

This 78 page volume is intended as a systematic procedure book for administering local anaesthetics in dental practice.

The book was written in Italian in 1957. When one considers the developments, now in common use, which have been made since that time one wonders at an English translation having been made in 1966.

Anaesthetic solutions are covered in five pages. The author mentions only procaine and lidocaine out of a considerable number of fine agents now in common use. He dismisses vasoconstrictors with brief mention of only adrenalin and nordefrin. No mention is made of aspirating carpule syringes nor of disposable needles when, surely, the introduction of these has given to the dental profession unquestioned safety and convenience. The action on technique is well illustrated and includes all basic methods although nothing new is presented. The section entitled "Clinical Concepts" deals all too briefly with problems and emergency situations which may be encountered.

There is little to recommend the purchase or use of this book.

M. A. Rogers

Advances in Oral Biology

P. H. Staple, ed. Vol. II. New York and London, Academic Press, 1966. 219 p. Illus. \$12.00

Dental science advances rapidly with modern techniques and it is difficult for dentists, even for those interested in research, to keep abreast with any aspect not closely associated with their particular field. Scientific papers given annually are so numerous that only a small proportion of presentations can be attended, and the papers themselves are so condensed that their importance may not be apparent. The present series of *Advances in Oral Biology*, of which the second volume is as excellent as the first, fills a need. Certain subjects are chosen from many. They are selected for their importance and their interest, as well as for their presentation.

D. J. Anderson discusses the confusing problem of dentinal sensation. D. C. Kroeger and J. C. Weatherred review the modern knowledge of the plasma kinins, polypeptides which are derived from plasma proteins and participate in the physiology of the oral tissues and in tissue injury, inflammation, stress and dental caries. T. Koulourides discusses the subject of tooth surface-oral fluid equilibrium, which involves such topics as resistance of the enamel surface to the dissolving potential of the plaque, remineralization of demineralized areas of the tooth surface, maturation of the tooth surface, and the effect of

inorganic elements on the softening of enamel surfaces by bacterial plaque. Finally, S. M. Bien discusses the fluid mechanisms in the periodontal membrane which resist occlusal load. It is an excellent series of articles which can be read and enjoyed at one's own pace. If speed-read at 30,000 words per minute, Volume 2 can be ingested in a little over two minutes, but this is not recommended without a coolant.

G. J. Parfitt

Drugs of Choice 1966-1967

Walter Modell. St. Louis, The C.V. Mosby Company, 1966. 969 p. \$16.75

An authoritative and unbiased evaluation of drugs is hard to find. *Drugs of Choice* attempts to do this by employing different authors with specialized knowledge and experience for each clinical situation. These contributors express their own opinions about the drugs in current use in their respective fields.

All chapters have been extensively revised in this new edition. An all-inclusive drug index appears at the end of the book. Many of the chapters are of direct interest to dentists from the standpoint of drug administration and prescription. Other chapters give valuable information respecting treatment of dental patients receiving medical care.

Clifford Reynolds

Twice They Lived

I. B. Ezra. New York, A. S. Barnes and Co., Inc. and London, Thomas Yoseloff Ltd., 1965. (Available from Smithers & Bonellie Ltd., Toronto) 319 p. \$6.50

I. B. Ezra, a Windsor, Ontario, dentist, wrote this allegory in 1938. The story concerns the adventures of the four sons of a cobbler and his wife who journey forth to seek what they believe is important to living. During their travels they reach a place where they are each given one wish. One brother desires power, one wants wealth, one asks for knowledge and understanding, and the other wishes for true happiness.

This is a simple, well-written story of each brother's experiences in the fulfillment of his wish. The book can be read as a lesson in human existence by an adult or as a fairy tale by a child.

Enid Bazlik

library • bibliothèque

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